VICTORY BUY WAR BONDS AND STAMPS

TECHNOLOGY DEPT.

OCTOBER, 1944

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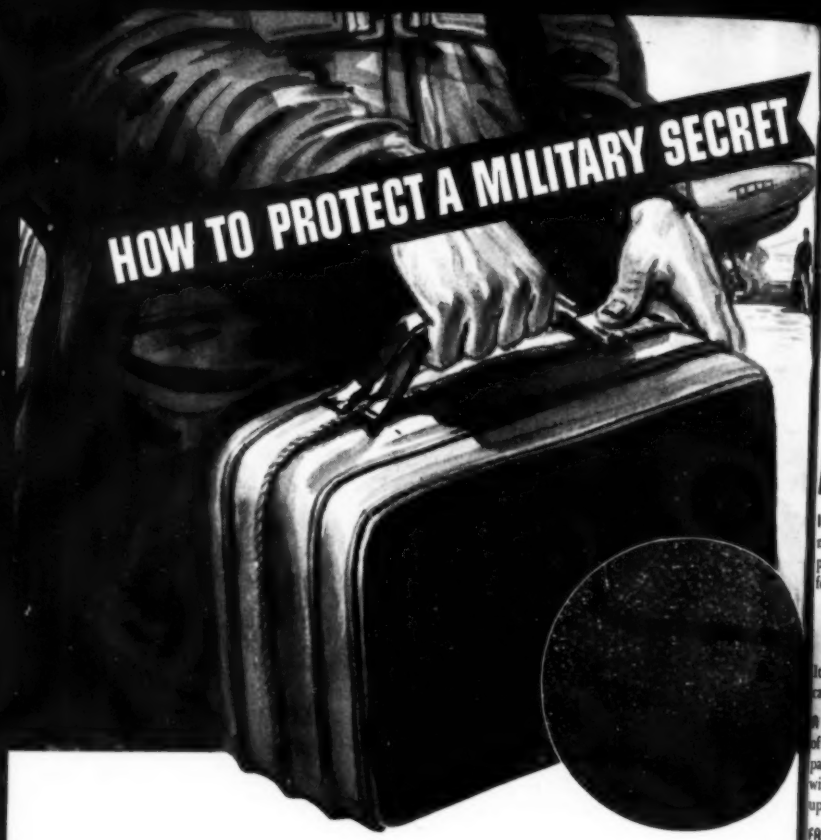
Industrial FINISHING

Published Monthly in the Interest of Modern Production Finishing

He likes to hear from you...

Incidentally, we too would like to hear from you. Write us about your postwar finishing plans. Perhaps we can offer some suggestions of value to you.

ADVANCE PAINT CO., Indianapolis 7, Indiana



A bombsight must be protected from more than spying eyes. To operate with unimpaired precision, these instruments must be shielded from attack by moisture with corrosion resistant coatings that will stand the gaff.

For this important job, Roxalin Rincontrol, the new textured enamel finish, has been widely used because it has these service qualities:

- Toughness
- Hardness
- No-glare sheen
- Sure grip Texture

HIGH RESISTANCE TO

- Moisture
- Salt spray
- Thermal shock
- Perspiration
- Abrasion
- Marring

Re-conversion note: Rincontrol is now available for most general industrial uses. Write for Technical Bulletin.

ROXALIN *flexible* FINISHES
INCORPORATED
ELIZABETH, N. J. • NEW JERSEY

A CLEAN PART *for* A FRESH START

IN 60 SECONDS, sometimes less, sometimes as much as five minutes, Enthone Enamel Stripper de-coats baked synthetic enamels of the following types:

UREA-FORMALDEHYDE	RESYL
GLYCEROL-PHTHALATE	GLYPTAL
PHENOL-FORMALDEHYDE	MELAMINE

It's many times faster than the best type of caustic strippers.

A PRODUCT OF PIONEERING RESEARCH—first of its type to be synthesized, marketed and patented.* It is an emulsion, used diluted with water at room temperature or heated up to 180° F.

FAST ACTION—The action on the enamel is physical rather than chemical. First it contracts, then lifts and slips off without trace or blemish. No sign of pigment or solid residue is left on the work as in the case of caustics.

BASE METAL UNDEFILED—Enthone Stripper is mildly alkaline (pH 9-10) and does not attack steel, zinc, aluminum and magnesium or other metals. Anodized aluminum is unharmed and can be re-enameled without re-anodizing.

SIMPLE OPERATION—Work to be stripped is dipped in a tank containing the solution in the usual manner, mechanically or manually, and remains just long enough to remove the enamel. Then rinse in running water and dry. It is now ready for refinishing. Write today for FREE TRIAL SAMPLE.

THE ENTHONE CO.

441 Elm Street **New Haven, 2, Connecticut**

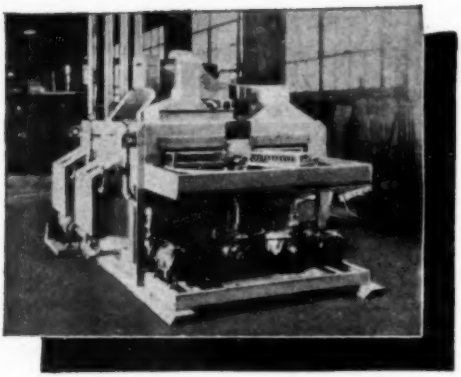
*U. S. Patent 2,242,106

ENTHONE ENAMEL

STRIPPER

NO CAUSTIC ACTION

for SYNTHETIC ENAMELS . . . . . Urea-formaldehyde, Resyl, Glyptal, Glycerol-phthalate, Etc.



Automatic Machine for Emulso-Spray and Hot Alkaline Wash

Magnus makes all types of cleaning materials and adapts them to the most suitable cleaning methods. Magnus also designs and builds cleaning machines for any method and material. Our service is unprejudiced and unbiased.

Here's an unusually compact machine designed around the Magnus Emulso Spray method of precleaning and the hot alkaline cleaner process for obtaining a chemically clean surface. Magnus design has arranged for five treatment stages, including Emulso-Spray, Cold Water Rinse, Hot Alkali Wash, Hot Water Rinse and Hot Air Dry in a very small floor space.

MAGNUS EMULSO-CLEAN

In this particular machine, the hot alkali wash was included to provide for a chemically clean surface on the work. For most metal cleaning operations, Magnus Emulso-Clean (spray or dip) is all that is necessary. Work is dipped or sprayed in the Magnusol solution, then flushed free of dirt and solution with water under pressure. The Magnusol solution does not dissolve or dislodge the dirt, but penetrates deep into dirt deposits, loosening their bond with the metal surface. Flushing water forms an emulsion with the solution which carries the loosened dirt away. The quickest, most economical method of cleaning most metal objects for all finishing operations except plating.

Magnus

MAGNUS CHEMICAL COMPANY • 40 SOUTH AVENUE • GARWOOD, N. J.

CLEANERS-METHODS-MACHINES

TWENTIETH YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor E. A. DOSCH, Assoc. Editor

Vol. XX, No. 12 OCTOBER, 1944 $2.00 a Year

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PLENTY OF THEM!!!

Tell us your finishing problems and we will tell you about the new items we have developed to solve them.

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Industrial Finishes

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HIGHLY RESISTANT TO CORROSION, HEAT, ABRASION

Black, white, numerous smart colors. Spray it on at 200° F., bake at 350° F. in any industrial oven. Stands heat up to 1000° F., making an ideal protection for exhaust manifolds, stove linings, etc. Inert to mild alkalis, most acids. Non-priority. Tests JQD 515 QM Dept. Samples on request.

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CHEMICAL COMPANY
MODERN METAL FINISHES
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Letters from Readers

More Roller Coating

In July issue, page 5, the letter entitled, "We Know Roller Coating," by A. C. Jones Co. interests us. We are eager to get the address of the above named company and the names of other companies in this line of business.—W. S. Co.

Information supplied.—ED.

How Moisture in Wood Affects Finishing

I have found a reference in Chemical Abstracts (1941), entitled, "Moisture in Wood and How It Affects Finishing" by Willard Seeman; INDUSTRIAL FINISHING, June 1941 issue, pages 26, 28 and 29. I should very much appreciate it if you will send me a reprint of this article, if same is still available. —Technical Assistant, Dep't. of Forestry, PURDUE UNIVERSITY.

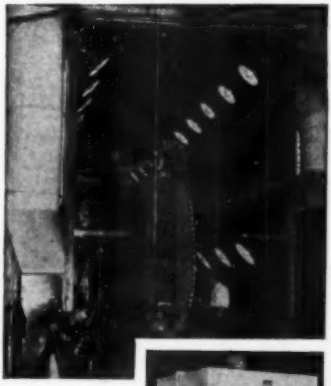
Bleaching Lumber

We have heard that there is a chemical process to bleach lumber. We believe that the lumber is introduced into a chamber hood and there it gets in contact with some chemical fumes. If we are correct we would like to have the names of manufacturers of such equipment.—Cia. Mfra. De Muebles "La Malinche," S. A.

We are not familiar with such a method of bleaching out color. A method of this kind is or was formerly used to some extent for equalizing the color of mahogany and walnut — to make all of the light sapwood dark.

The bleaching process, as used by most manufacturers, is generally applied only to exposed surfaces of wood

On Big Jobs...



or Small Jobs...

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FINISHING EQUIPMENT SPEEDS PRODUCTION!

KOCH has designed, built and installed complete finishing systems as well as standardized finish baking ovens, for manufacturers of all types of products . . . wood, metal and plastics . . . with outstanding success. They can do the same for you.

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Without Rubbing

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SYNTHETIC
Flat Finishes

Obtain the rich effect of rubbed finishes—WITHOUT RUBBING—with Perfection Flat Finishes. Hard, durable, vividly transparent—unique water-proof, liquor-proof blends of fossil gums and gloss varnish. Free from orange peel—protect and enhance natural beauty of wood and stain—retain full sheen even after long standing. For maximum satisfaction at minimum cost, try Perfection Flat Finishes in your own plant.

PERFECTION PAINT & COLOR CO.
Indianapolis 2, Indiana

after same have been planed, cut to size and smoothed by sanding. The color is bleached out only for a limited depth on the exposed surfaces. This keeps down the cost of bleaching.

In a letter we are sending you the names and addresses of several manufacturers of bleaching compounds. Can some reader tell us something further in reply to the above question?—ED.

Silk Screen Stencils

We note in your Sept. 1944 issue, on page 8, that you supplied certain information regarding silk-screen stencils for one of your subscribers. Will you please be good enough to send us the same information? We use the silk screen and would like to have all the information we can possibly get regarding this operation.—A. MFG. CO.

Lithographing Machines

Would you be kind enough to let us know who are the best manufacturers of lithographing machines for tin plate? We would be very grateful if you could also give us information on lithographing collapsible tubes (lead and tin) and machinery for this work.—F. R. (Cairo, Egypt).

Information furnished.—ED.

Coating to Make Windows One-Way Transparent

The writer was looking over some old copies of your interesting journal, seeking an item where a coating material was mentioned for glass. This gave a mirror effect from one side, but was transparent through the other. We would like to use this on the window-panes of our laboratory to prevent people from looking in, but it should not obstruct our vision from the inside. We believe this article was made by a concern in Rockford, Ill. In fact, if we remember correctly, there were two firms who made a similar product.

We do not know whether this is an expensive item or not, nor can we say whether it contains mercury or some metal that would be prohibitive during war-time.

Can you give us any information on this subject? We know that it was described in your journal, but it may be possible that this particular number has been removed from our file by someone who wanted another item for later reference.—H. Co.

We do not recall of having published anything on this subject and we find nothing on it in our cross-indexed file of information. Can some reader tell

Top-flight REMOVERS

FOR

PAINT • ENAMEL
VARNISH • LACQUER
SYNTHETICS • SHELLAC

Put your Removing Problems up to us

We have specialized in paint removers for the past 30 years, and our products are the most widely used in the field. . . Meeting the varied needs of industrial concerns and painters has given us extremely broad experience in solving difficult problems. It will, therefore, pay you to consult us.

Our removers have strong penetrating power, yet are harmless to hands and leave the surface of wood, metal, etc. in perfect condition for refinishing.

•

Blackout and Camouflage Finishes

quickly stripped with our removers

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LINGERWETT: A general remover applicable to paint, varnish, enamel, lacquer, shellac, etc. It's the largest selling remover in the country.

WONDER-PASTE: Similar to Lingerwett, but in paste form. Ideal for upright surfaces, because it will not run.

SAF-TE: A new, all-purpose remover that is non-burning. Leaves no waxy residue; no difficult wash-up job.

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Stops RUST after cutting-oil and wet-grinding operations

...and in many other plant processes where rust and corrosion are immediate danger factors, Tectyl has proven its ability to save the money and man-hours that these silent saboteurs CAN cost. One of the five specialized types of Tectyl is made-to-order for your own rust-prevention problem. Easy to apply and remove, economical to use-Tectyl protection is *positive*. Write now for bulletin with complete data.

TECTYL
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General Offices, Cincinnati, Ohio

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Apply Wyandotte Spray Booth Coating *first* for quicker removal later of layers of inflammable paint. It takes only a thin coating to make cleaning easier, speedier, more economical. Write Wyandotte Chemicals Corporation, J. B. Ford Division, Wyandotte, Michigan, for full details!

Wyandotte F-100* will help cut your floor-cleaning costs. Even heavy soil disappears when this remarkable compound gets to work!

*Registered Trademark

us anything about this or suggest something?

Of course it is common knowledge that during daylight, when no artificial light is turned on inside, people outside cannot easily see through a white mesh curtained window, or the white painted screen wire of a screened-in porch, yet the people inside can readily see out. Perhaps this is partly because of brighter light outside.—ED.

Electrostatic Paint Spraying

We are seeking your assistance in obtaining information concerning Electrostatic Paint Spraying. The process involves the charging of the paint and the article to be painted with opposite polarity. This is accomplished by means of the Westinghouse Kenotron Rectifier Tube. Have you any information as to the source for this type of equipment?—K. MFG. Co.

You are referred to H. J. Ransburg Co. (Electric Coating Division), Indianapolis, Ind.—ED.

Flat Varnish Wanted

We are furniture manufacturers, and are interested in a good flat varnish satin finish or rubbed-effect varnish. If possible we would like a flat varnish made by a chemical process wherein flattening gums are used instead of the conventional stearated method.

We understand that one concern made this kind of flat varnish but they can not take more orders now. Please let us have the name and addresses of some other firms that are engaged in the manufacturing of flat varnish such as the one we want.—L. M. Co.

Hot Lacquer Wanted

We are interested in hot lacquer processes which we have been reading about recently. We would be extremely pleased to have you send us any available information on this subject, including a list of manufacturers of materials and equipment.—B. B. Co., Director of Research.

In a letter we are including names and addresses of several concerns who, we understand, are in position to supply lacquers that are formulated to be sprayed at high temperatures; also manufacturers of equipment for heating and spraying the lacquer.—ED.

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Laboratory analysis—
Practical experience—
Trained service representatives—
Can be of help to you in solving finishing problems whether of production or maintenance.
LACQUERS
FILLERS
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PAINTS
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2300 North Ashland Avenue • Chicago 14, Illinois

This buying

THE LILLY COMPANY

HIGH POINT, N. C.

"Sight Unseen" won't last forever...

When THE WAR EMERGENCY ENDS—and merchandise is again plentiful—your customers are going to start buying carefully once more, as they did before the war. They're going to be more particular about quality—they're going to be exceptionally particular about the appearance and endurance of the finish on your product.

Lilly Finishes can help you meet this challenge. We have been making finishing materials for 79 years (since 1865) and since 1921 (23 years) we have been making specific finishes for specific products and purposes. Nearly 14 years ago we adopted the slogan "With the right finish—you'll finish right." This slogan applies today in war . . . and it will apply tomorrow in peace.

NY LILLY VARNISH COMPANY
INDIANAPOLIS, IND.

Do you know...?

Q. What are these men opening?
☐ Blood plasma ☐ De-salting kit
☐ Anti-seasickness pills

A. De-salting kit—now standard equipment in life boats and life rafts. To seal the canister in which this kit is packed and to seal the tablet package inside, Permacel moisture-proof cloth tape (Utilitape) is used. About a foot of this tape is included in the kit to mend possible rips in the precious rubber "bottle."

Q. This modern plant speeds production by:
☐ Bundling complete unit assemblies
☐ Keeping parts in separate bins
☐ Tagging individual parts

A. Bundling complete unit assemblies. Parts needed for an assembly are gathered in the stock room and bundled together with Permacel cloth tape (Jonflex). Inventorying is simplified. Assembly is speeded up. No parts are lost, no time wasted searching through bins.

Q. First post-war bathtubs will probably be made of:
☐ Cast iron ☐ Plywood ☐ Plastics

A. Cast iron. To protect the porcelain in surfaces of bathtubs during installation, a special Permacel tape is used to hold a "liner" in place while plastering is under way. Holds tight till the job is finished, then strips off clean, leaving smooth, white, unmarred surfaces.

Quiz on timely production short-cuts—No. 7

Q. How many different grades of steel go into making a car?

☐ 17 ☐ 70 ☐ 170

A. 70. To identify different grades of steel and other materials, Permacel's companion, Texcel cellophane tape, is used by manufacturers. Made in many colors, this tape speeds work and cuts costs during installation of fuel lines and ignition systems. Texcel sticks at a touch, hangs on tight, strips off clean.

Q. The tape on this jeweler's window is part of the:

☐ Insulation ☐ Decorative scheme ☐ Burglar alarm system

A. Burglar alarm system. A special Permacel metal tape (Metacel) is used for this purpose. Also used to seal fuse chambers in hand grenades, this tape will find many other uses after the war—in decoration, as an indoor aerial under your rug and wherever a combination conductor-and-sealer is needed.

FREE BOOKLET "A New Tool for Industry" shows how Permacel Tapes save time, work, money, at every stage of a product's progress through a plant—illustrates and lists many practical applications that may prove helpful in your business during conversion and in post-war production. Write for your copy today: Dept. 1, Industrial Tape Corporation, New Brunswick, N. J. Our research laboratories are always available to you for development of special tapes to meet special needs.

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Industrial Tapes

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New Brunswick, N. J.

Makers of Texcel Tape

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SINCE 1888

PAINT—INTERIOR:

	Bbl.	5-Gal.	1-Gal.
DADO-"ISLAND" (Ask for Color Card)			
EGGSHELL "ISLAND" (Ask for Color Card)			
EGGSHELL "SERVISHEEN" (Ask for Color Card)			
FLAT "ISLAND" (Ask for Color Card)			
FLAT "BEHTONA" (Ask for Color Card)			

FLOOR

	Bbl.	5-Gal.	1-Gal.
Para-lastic (Ask for Color Card)			
C. C. C. (Ask for Color Card)			

GLOSS

	Bbl.	5-Gal.	1-Gal.
Behcote			
Gloss Coat (Ask for Color Card)			
Island (Ask for Color Card)			

PRIMER

	Bbl.	5-Gal.	1-Gal.
Wet Wall No. 141			
Big B			
Will Covermore			
PROTEK (Kalsomine Coater)			

PAINT—EXTERIOR:

METAL-BEE

	Bbl.	5-Gal.	1-Gal.
Aluminum	Bbl.	5-Gal.	1-Gal.
Black	Bbl.	5-Gal.	1-Gal.
Gray	Bbl.	5-Gal.	1-Gal.
Green	Bbl.	5-Gal.	1-Gal.
Red	Bbl.	5-Gal.	1-Gal.

PERMATONE "Permanent Trim"
(Ask for Color Card) ..... 5-Gal. 1-Gal.

READY MIXED HOUSE PAINT
(Ask for Color Card) ..... 5-Gal. 1-Gal.

AWNING PAINT "Set Fast" ..... 5-Gal. 1-Gal.

ALL MARINE PAINT "Ship Shape Brand" ..... 5-Gal. 1-Gal.

RAGS—WIPING ..... Bales 25-lb. 1-lb.

RESPIRATOR MASK ..... Doz. Each

Disc Filters ..... Doz. Each

ROLLERS

Felt, 2" or 3" ..... Doz. Each
Rubber, 2" or 3" ..... Doz. Each

ROSIN

Lump	Bbl.	100-lb.	Lb.
Powdered			1-lb. cartons

ROTTENSTONE

Brick	Bbl.	25-lb.	Less
Lump	Bbl.	25-lb.	Less
Powdered (Light or Dark)	Bbl.	25-lb.	Less

RUBBER FINGERS ..... Doz. Each

Illustrated catalogue of complete finishing materials that will take care of your finishing requirements.

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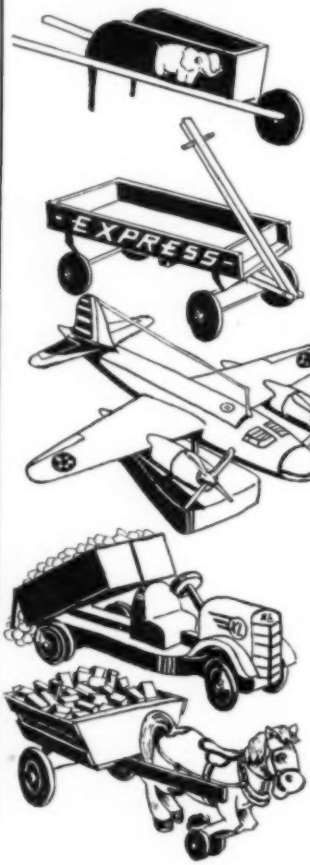

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Top grade finishes now used by many manufacturers with complete success . . . produced from non-critical materials in appropriate colors.

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Formulated for spraying or dipping . . . air-drying time adjusted to fit your schedule . . . remarkable ease of application. WRITE TODAY!

The PRODUCT WITH A PEDIGREE
THE P-D-GEORGE CO.

THE P. D. GEORGE CO.
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now INFRA-RED plus

NEW ADVANCED

ROSS AIRAY OVENS

INFRA-RED RADIATION } COMBINED AND CONTROLLED
PLUS AIR CIRCULATION }

For those who should use Infra-Red heating (and we don't say everyone should) here is Infra-Red at its best. Developed after more than a year of concentrated research and experimentation by the most competent drying engineers, the ROSS AIRAY System utilizes a scientific method for controlling radiant temperatures—(patent applied for)—that completely overcomes the objectionable features of premature attempts to achieve similar results. With entirely new and radically different control features and working characteristics, ROSS AIRAY OVENS will show substantially increased thermal efficiency in every case.

NOTE THESE ADVANTAGES!

Ambient temperature controlled by temperature of the goods.
Equalized temperatures preventing stratification in oven.
Heat losses greatly reduced.
Excellent rate of temperature rise maintained.
Positive control of air makeup and exhaust volumes.

Get the real facts on Infra-Red—its advantages and its limitations. Write for our new Bulletin No. 145. Laboratory testing facilities available.

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For the pace of peace will be very fast . . . and even greater efficiencies will be needed to meet the intensified competition that lies ahead.

To match this pace Glidden is ready with some remarkable finishing developments, already field-tested. These include precision formulations for use with modern conveyors, infra-red baking and controlled humidity and temperature baking equipment.

Glidden's vast research facilities are available for specific industrial finishing problems. Inquiries are invited.

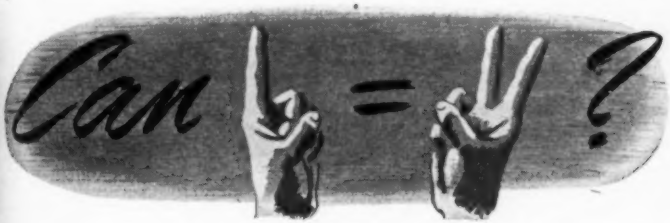
THE GLIDDEN COMPANY • Cleveland 2, Ohio

TIME-TESTED

BOMBAY BLACKS

Glidden's line of Bombay Blacks is unique. It embraces formulations adaptable to every conceivable combination of climate, weather, methods of application, methods of drying and allowable cost. In fact, the line of Bombay Blacks is so complete and so flexible that Glidden can meet any specifications with virtually a tailor-made finish. Ask for a Bombay Black demonstration.

GLIDDEN *Pacemaker in Paints*



YES...

Deoxidine Cleans and Conditions Metal Surfaces IN ONE OPERATION

DEOXIDINE removes rust, eliminates or inhibits rust producers — removes light annealing scale, oxides or oil and leaves the surface properly conditioned to receive a durable paint finish.

Mathematically one can never equal two, but chemically the DEOXIDINE process does the work of two, combining in one operation both cleaning and conditioning to receive paint finish.

DEOXIDINE is the original phosphoric acid type cleaner and cleans not only the surface, but eradicates the rust and rusters from the pits in the surface, thus insuring the utmost in protection for lasting paint finish.

There are types of DEOXIDINE suitable for use in brush, spray or immersion processes and that may be adapted to removal of varying amounts of grease or rust met with in finishing metal products.

PEROLINE like DEOXIDINE has a two-in-one action. Applied to unpainted surfaces of cold rolled or machined steel, it effectively prevents rusting.

Constituents of PEROLINE react at the same time with the metal to destroy rusters, remove blushes of rust, and create a surface admirably suited for painting when the oil phase left by PEROLINE is removed.

Proved in peacetime and war, DEOXIDINE and PEROLINE have helped speed the production of the more durable material required by our armed forces and our allies. In planning for your postwar fabrication and equipment, we offer the experience of ACP Technicians and the facilities of its well equipped laboratories. They are at industry's call for the solution of metal treating problems.

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AMERICAN CHEMICAL PAINT CO.
AMBLER ACP **PENNA.**

Note—West Coast Plants may address inquiries and orders for prompt delivery to Leon Finch, Ltd., 728 East 59th St., Los Angeles, California

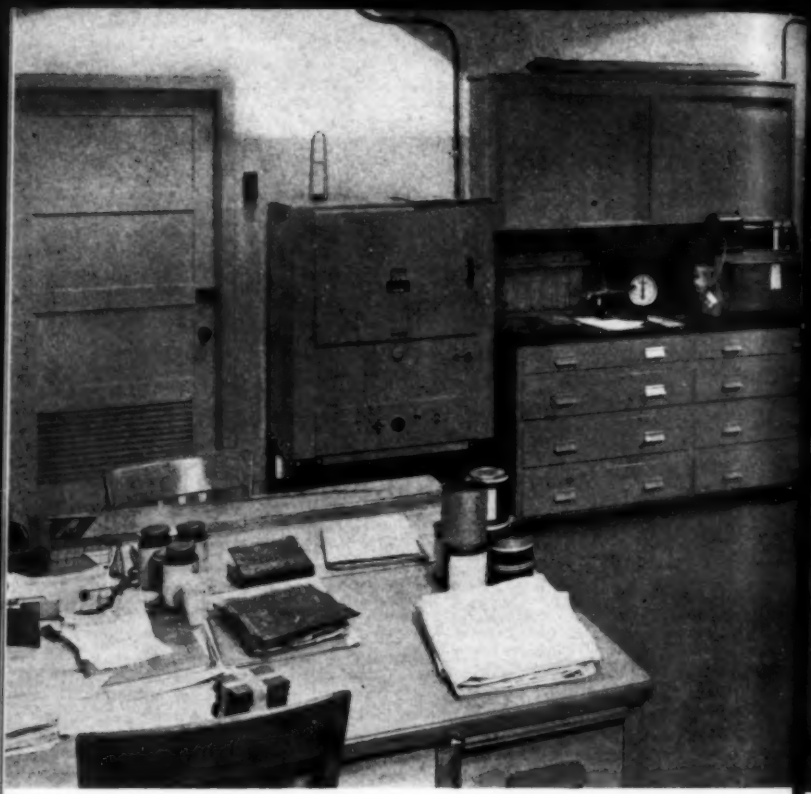
AMERICAN CHEMICAL PAINT COMPANY, AMBLER, PA.

Please send me general Technical Service Data Sheets on

Name_____ Title_____ ☐ *Deoxidine*

Company_____ ☐ *Peroline*

Address_____ B-10



Douglas Aircraft Solves P

ANY INDIVIDUAL or company planning the erection of new or additional paint and chemical storage facilities would be greatly benefited by making a close study of the advantages and innovations incorporated in the new paint building recently completed by the Douglas Aircraft Co.'s El Segundo division. With an eye to such factors as ease of handling stock, storage control, quality control and safety, the designers have developed in a single unit all facilities necessary to assure delivery of a uniform and high quality product to the various paint booths and dip tanks located throughout the factory.

The building has facilities for the storage of both paints and chemicals, inter-related products extensively used in most indus-

tries.
labora
ing an
necess
tory is
Proces
while
proble

The
partial
Equipm
as well

Your paint materials and thinners—do you have a safe efficient way of receiving, dating and handling incoming shipments? Is your method of ordering materials from safe storage fool-proof? Are new batches of material prepared accurately and kept uniform by a real system of control? Here are shown new facilities of a firm that answers "Yes".

BY G. C. CLOSE

Photographs supplied by courtesy of Douglas Aircraft Company

Paint Storage & Control

tries. A large, well-equipped paint laboratory is provided for all testing and investigational work found necessary. As the paint laboratory is under the direction of the Process Engineering Department, while actual storage and handling problems are delegated to the Material Division, a cross-responsibility is generated that is highly desirable from a managerial standpoint.

Reference to the floor plan sketch (on a following page) will indicate immediately the convenient arrangement of the entire building. The truck-bed-level unloading platform, the overhead crane paralleling storage bays, the laboratory and mixing room,

The illustration above shows a partial view of the paint laboratory. Equipment is available for research as well as for quality control work.

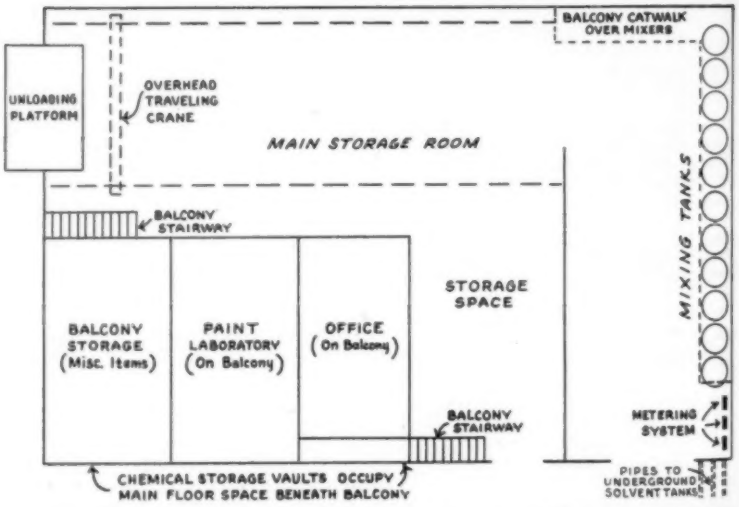
the underground storage tanks for highly inflammable thinners and solvents—all were designed to contribute maximum advantages, with as little chance as is possible for error or lost motion.

Checking, Dating, Handling Incoming Paint Shipments

A close check upon product quality and handling procedures is made as soon as a paint shipment arrives. After containers of paint are unloaded on the receiving platform, their contents are sampled and the samples are sent to the laboratory for routine check. In the laboratory, quality tests are conducted and a formula to control subsequent mixing or thinning of that particular batch is worked out. This information is then forwarded to the supervisor of storage and handling, and it constitutes approval for acceptance of the shipment.

Each batch of paint is dated as received, then stored in a manner to facilitate use of the oldest stock first. By close adherence to this principle, danger of inventory depreciation due to age is eliminated.

Removal of the paint from the storage to the mixing room is accomplished by hoisting the drums or barrels with the overhead crane to the balcony that extends above a row of eleven 120-gallon mixing tanks. Thinner is piped in from underground storage tanks to the mixing tanks. It passes through a metering system that assures accurate propor-



Schematic floor plan of paint storage building. The balcony catwalk above mixing tanks is used to facilitate charging of the mixing tanks with paint. The laboratory and office are located on the balcony, along with storage space for miscellaneous less-used materials. The entire main floor space beneath the balcony is occupied by chemical storage vaults.

The quicker the inflation, the better, to a flyer struggling in the water with a deflated rubber raft! ¶ The quicker and more practical the finishing method, the better, too, so the Andrews Alderfer Processing Company can produce more and more pressure containers for split-second life raft inflation. ¶ The copper flashed tubing comes in open coils. The first operation is a metal cleaning operation, followed by a dip in Berry Brothers' Zinc Chromate Primer, AN-TT-P-656-B. ¶ The primer dries overnight, then the tubing is wound on the core. The coil is then tested up to 3,000 lbs. pressure for an hour in water at 120°. ¶ The coil is then placed in oven for 20 minutes at 225° to dry and reharden the primer, after which a dip coat of lacquer is applied. After 2 hours' air-drying, a spray coat of lacquer is applied. Both coats are Berry Brothers' AN-TT-L-51 Aircraft Gray. ¶ Have you a wartime finishing problem (or a postwar finishing question)? We will be glad to consult with you. Write or wire.

BERRY BROTHERS
Paints · Varnishes · Enamels · Lacquers
Detroit 7, Mich. Walkerville, Ont.

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QUALITY FINISHES SINCE 1858

CRYSTAL-CLEAR

Transparent clarity of nitrocellulose lacquers accounts for their use in finishes for the *finest pianos* and choicest woods.

BRONZE, SILVER, PEARL

Nitrocellulose lacquers are ideal finishes for all types of metal. Easy to apply, they add brilliant color, full gloss, and beauty.

COLORFUL SPARKLE

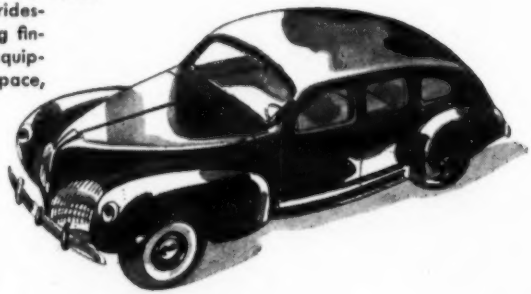
such labels from moisture, grease, dust, dirt, fingerprints, and scuffing.

COLORFUL SPARKLE

such labels from moisture, grease, dust, dirt, fingerprints, and scuffing.

SOFT PASTELS... RICH, VIVID OPAQUES... IRIDESCENTS

No other finish has the same range of beautiful, delicate pastels; rich, bright opaques; gleaming, metallic iridescents. Fastest-drying finish known—saves equipment, labor, plant space, maintenance and repair costs.



Hercules makes no finished lacquers, but supplies the nitrocellulose from which lacquers are made. For helpful application information on your finishing problem, *call your lacquer supplier*. Cellulose Products Department, Hercules Powder Company, 928 Market St., Wilmington 99, Delaware.

HERCULES

NITROCELLULOSE

Main storage section showing overhead crane used to transfer incoming stock from the loading platform to its place in the storage bays.

tions in accordance with the formula previously supplied by the paint laboratory personnel.

Underground Storage Tanks Receive Solvents and Thinners

Six underground storage tanks for solvents and thinners are in themselves a distinct and advantageous innovation. Located safely away from the main building, and underground, the fire and health hazard commonly associated with certain solvents and thinners is virtually eliminated. The tanks are inter-connected by a valve system so that one or all can be used for the same product. This allows adjustment of storage facilities to meet varying requirements. The metering system, with recording dials mounted inside the main building near the mixing tanks, permits automatic addition of thinner or solvent, of the required amount.

Chemical storage facilities are provided by a group of fireproof vaults located on the ground floor of the building beneath the storage balcony, laboratory and offices. The chemical vaults are kept locked at all times, with keys for same entrusted only to responsible plant personnel.

Safety Precautions in Storing And Handling Chemicals

When chemicals are required by the various manufacturing departments, a requisition is made out and sent to the chief chemist for approval. The chief chemist then delegates one of his assistants to supervise removal of the chemicals from the vaults. This assistant accompanies them to their destination and checks with the originator of the requisition to make certain that the right materials have been ordered for the intended use.

In certain instances, when preparation of the chemicals for plant use entails danger to personnel, the chemist remains on the scene

to supervise the mixing, vating, or local storage. This close cooperation not only assures real quality control but eliminates, to a great extent, the danger inherently associated with the handling of all chemicals by inexperienced men.

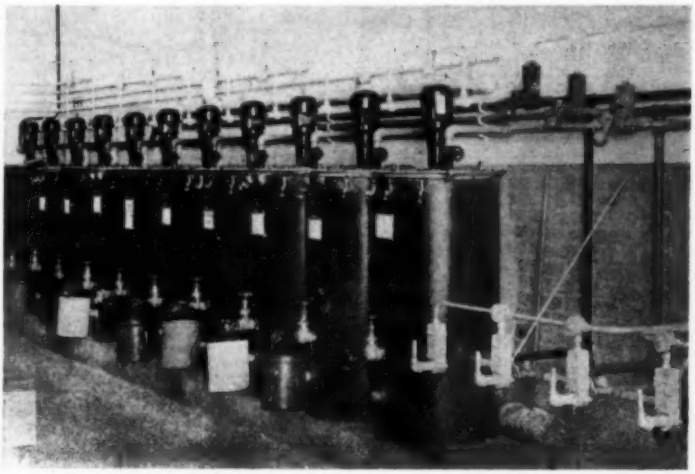
Why Paint Laboratory Is So Important

The functions of the paint laboratory do not end with checking the quality of each incoming shipment of paint. Personnel of the laboratory, under the direct supervision of A. L. LeGate, finish technician for the Process Engineering Department, is constantly engaged in testing new products, or in research work to find new uses for products already at hand.

Equipment in the laboratory is well adapted to all types of work involving industrial finishes or related products. Ovens, gloss meters, abrasion testers, salt-spray cabinet equipment, and miscellaneous small apparatus is provided to expedite research and control work to the utmost.

Another function of the laboratory is to investigate certain manufacturing problems that crop up from time to time in the surface preparation and product painting operations. Great success has come from this arrangement, due mostly to the fact that the laboratory personnel is intimately acquainted with the characteristics of all products in use, and has a record of all paint that has passed from storage into the factory departments.

The entire set-up for receiving, dating and storing paint materials, requisitioning same from stock, preparing batches properly for distribution and use, maintaining control of uniformity—all of this



Eleven mixing tanks wherein paints are mixed prior to delivery into the factory. The metering system shown at right is employed for admitting measured amounts of thinners from underground storage tanks.

These acid vaults are kept locked at all times. Admittance must be approved by the chief chemist, and an assistant chemist must be present when contents are removed or stored.

systemized arrangement is proving extremely efficient. Functioning of this system has been the means of ironing out many difficulties which would certainly occur under less favorable circumstances.

Water-wash Compound

REFERRING to a suitable compound for properly conditioning the water circulated through water-wash spray booths and settling tanks, one manufacturer says:

"Our product is designed for the purpose of maintaining free, clean, recirculating systems and water-wash booths. In too many instances, the manufacturers pay little or no attention to the diminishing efficiency of the exhaust system of their spray booths, and gradually louvres, exhaust stacks, spray lines, nozzles and pumps commence to clog with small particles of paint. It is only when employees ask for additional protection from paint fumes and overspray that the manufacturer realizes that his booth no longer is exhausting the maximum amount of air for which the booth was designed.

"Through the use of our product, the elimination of these problems of maintenance and operation is completely controlled . . ."

Ferbert-Schorndorfer Is Host to American-Marietta Men

The Ferbert-Schorndorfer Co., Cleveland, Ohio, was host to the technical and production men of six American-Marietta Co. plants at the regular quarterly technical meeting on Sept. 18 and 19. The meeting included a discussion of present and postwar problems, research reports and an inspection trip through the Cleveland plant.

President G. M. Hermann and Sales Promotion Manager Harry L. Ault attended from the Chicago office of American-Marietta.

Beg Pardon, Gentlemen, For Using Wrong Pictures

Our apologies to Mr. S. W. Fletcher, President of Ross Engineering Corp., and Mr. L. F. Weyand, General Manager of Minnesota Mining & Mfg. Co's. Adhesive Coatings Div. at Detroit, whose pictures are transposed in the news items appearing on pages 38 and 64 of Sept. 1944 issue of INDUSTRIAL FINISHING. In other words, Mr. Fletcher's picture is on page 64, while Mr. Weyand's picture is on page 38. We regret this very much.

To those who wish to make a complete correction in their copies of Sept. issue, we will send, upon request, extra proofs of these pictures so the proper pictures can be pasted over those which now appear in the magazine.—ED.

A RECORD THAT SAYS:

"Put it up to Murphy"

Distribution of purchases subject to renegotiation

War Department	
Army Air Forces	28.7%
Corps of Engineers	
Construction Division	1.0%
Supply Division	2.9%
Ordnance Department	8.7%
Quartermaster Corps	10.3%
Signal Corps	10.4%
Surgeon General	1.7%
Transportation Corps	.8%
Maritime Commission	2.6%
War Shipping Administration	8.1%
Treasury Department	.1%
Navy Department	
Bureau of Aeronautics	4.2%
Bureau of Ordnance	1.6%
Bureau of Ships	7.6%
Bureau of Yards & Docks	.5%
Bureau of Supplies & Accounts	3.7%
Unclassified war business	7.1%
	100.0%

The war-time record of a manufacturing concern is a good indication of its ability to meet your peace-time needs.

We call your attention, therefore, to our performance during the year 1943. This year is chosen because we recently completed renegotiation figures which indicate the percentages of our production applying to various government procurement agencies, according to end use designation. They cover 16 divisions of the government services, as enumerated in the table at the left. And while meeting these needs, we also filled rated orders for essential civilian purposes, etc., bringing the entire rated volume of our Industrial Division to 88.4% for the year.

The ability to satisfactorily meet these highly diversified requirements illustrates the value that lies in our policy of

INDIVIDUALIZED FINISHES

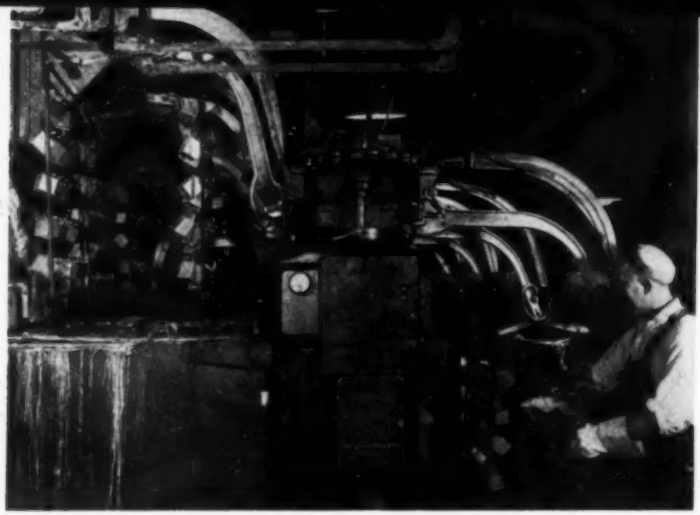
Whether you need a special coating for war, for current civilian needs or for post-war products, it will certainly pay you to "PUT IT UP TO MURPHY." For, as you know, the right finish can play an important part in the success of a product as well as in lowering your production costs.

MURPHY FINISHES CORPORATION

A subsidiary of Interchemical Corporation

NEWARK · SAN FRANCISCO · CHICAGO

MURPHY *Protective* COATINGS



Conveyorized automatic zinc plater in M-H finishing department. At left, racks of parts are ready to enter the tank; at right, a man is loading the conveyor.

Instrument Finishing

(CLEANING, PLATING, LACQUERING)

THOUSANDS of precise instruments — from gunsights and automatic pilots to thermostats and air-conditioning controls — pass through the metal finishing department of the Minneapolis - Honeywell Regulator Co.'s plant every month. Almost all of these instruments are built and finished to withstand the rigors of tropical or arctic weather, salt spray of the seven seas and the rough handling of combat; yet every one of them is a precision instrument built to tolerances measured in the thousandths of an inch.

How precision instruments of great variety are now surface treated and given protective and decorative coatings in the large finishing department of Minneapolis-Honeywell R. Co.

Almost every product built by the company, whether for war or peace, is small enough to fit in the palm of your hand. But every device, no matter what its intended use, goes through Honeywell's modern and efficient finishing department before it leaves the plant shipping platform.

Scientific Control of All Plating and Painting

Not in the commercial finishing business, the firm nevertheless operates one of the largest shops of its kind in the Northwest.

Through scientific control over plating and painting processes it is able to electroplate or lacquer faster than 90% of the industrial finishing firms in the industry. Modern equipment, skilled workmen, engineers and laboratory technicians enable the finishing department to operate at low unit cost, and at the same time turn out work of high quality—work which easily meets the rigid specifications of the Army, Navy and Air Forces.

Today, at war, Honeywell's list of products includes many types of gunsights, telescopes, quadrants and other fire-control instruments. In addition, autopilots, turbo supercharger controls and other instruments for aircraft are being made in volume. Also, because of the Government's fuel conservation campaign, thermostats and other controls for heating and ventilating are reaching production totals in the thousands of units every month.

About half of the instruments just enumerated are electroplated. The other half are lacquered. In all internal working parts, where corrosion protection is important but where appearance is not a major factor, the electroplating process is generally employed.

200 Workmen in Metal Finishing

To process the vast number of instruments being made daily and to keep pace with the production and engineering departments, Honeywell today is employing about 200 workmen in its metal-finishing department. This department is divided into plating and lacquering departments, while the latter is further sub-divided into a fill and printing group and a paint-spraying unit.

The majority of all steel parts, other than external covers, are electroplated with bright zinc to give a high degree of corrosion protection. The steel parts that have bearing surfaces are plated with a copper plate, followed with a nickel plate to give a hard surface. This provides a low-friction factor which is necessary because of the smooth operation required of virtually all of the M-H instruments.

Brass parts usually are finished with a bright dip operation (acid-treatment) or plated with nickel where decorative purposes are a factor in the completed unit.

The steel parts for covers of such instruments as thermostats and other devices exposed to view are given a Bonderite treatment before lacquering in order to provide better paint adhesion and, in addition, to remove all appearances of a metallic coating.

Paint Spraying Technique; Silver Bronze Color

Paint spraying for the company's regular products is accomplished with the aid of a specially developed racking process. Parts to be painted are mounted on these boards which are approximately 16x36-in. in size and hold from 8 to 20 pieces, depending on the units to be sprayed. The racks are then moved to spray booths where the parts are all sprayed at once, and then placed on drying trucks which hold 40 of the racks at a time. These parts are all air-dried because the nitrocellulose type of lacquer used dries quickly without the use of high temperature.

On the majority of the company's controls that require lacquer coating, the finishing is done in one of two ways. The first is

a silver bronze lacquer used primarily on controls located in the living quarters of a dwelling in which they are to be mounted—thermostats, for example. This color was selected because of its ability to blend with all decorative schemes. All parts sprayed with silver bronze are also given a clear lacquer topcoat as a final operation. This is a special type of material that is not affected by ultra violet light, therefore the control covers will not turn yellow when exposed to sunlight. Company experience of many years proves that the finish of these controls retains its original color indefinitely.

Electroplating Equipment—First, Metal Cleaning

Equipment for the plating room includes:

1) Two vapor degreasers, one a conveyor type and the other a hand-immersion type. Parts to be plated first pass into a boiling solution of trichlorethylene to remove the heavy greases accumulated during manufacturing processes. Next the parts are passed through a cold bath of trichlorethylene to remove the slight traces of grease left from the first bath. This also cools the parts so they are under the boiling temperature of trichlorethylene. Following this treatment the parts are put into a vapor chamber where hot trichlorethylene vapor condenses on the cold parts, making possible a final cleaning of the parts with a perfectly clean solvent.

As a part of the degreasing process, the company has an auxiliary still in which all dirty solvents are processed to remove the dirt and greases accumulated in the various cleaning vats. The clean solvents are returned to the degreasers so that there is almost a 100% recovery except through unavoidable losses of stray vapors escaping in the vapor degreasing units.

Spraying tank periscope holder at M-H.

2) A large automatic zinc-plating machine is part of the equipment. After degreasing, the parts are hung on racks and this machine automatically moves the parts through all preparatory and bright dipping operations necessary to obtain a zinc-plated finish. The plating machine is so designed that the time in the plating cycle can be changed so as to make possible the thickness of plate required for the many different types of corrosive conditions.

3) Two barrel units for zinc-plating are also included. One of these units is a "multiple-horizontal" zinc-plating machine. The plating section of this machine contains five plating barrels each

CLEANING COSTS *Slashed 25%*

SUN SPIRITS

eliminates heating . . . saves time . . . lowers cost

With speed such a paramount factor in the race for victory, any slowdown in production can be both costly and hazardous. That's why a manufacturer of parts decided to revise his cleaning operations and step up his output.

Loss of Time, due to required heating, had been one of the problems encountered with their previous method of cleaning. Costs were high and, in addition, the solvent had a slight odor that was irritating to many workmen.

Now, with Sun Spirits, their difficulties have been overcome. Time is saved because heating and mixing are eliminated, and production has been improved. An estimated 25% reduction in costs was also effected by the change, as compared with their previous product.

Sun Spirits may well answer your needs today, and solve your problems, too. For more detailed information, why not write for your free copy of "Case Histories of Cleaning Up War Parts."

SUN OIL COMPANY • Philadelphia 3, Pa.

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SUN INDUSTRIAL PRODUCTS

HELPING INDUSTRY HELP AMERICA

WHAT'S NEW AT WATSON-STANDARD?

"PHEN-COTE"

Announcing "PHEN-COTE" *A New Development in Organic Surface Finishes*

"PHEN-COTE":—a true thermo-setting Plastic, completely converted by heat to an infusible, insoluble, flexible film that is highly resistant to Acids, Alkalies, Oils, Greases, Solvents, Alcohol and most Chemicals. PHEN - COTE contains no oil modifiers nor plasticizers to weaken the film, and is readily adapted to preparing highly resistant container linings, exterior protective coatings for containers, closures and other products requiring finishing prior to fabrication.

Write for sample and more detailed information.

THE WATSON-STANDARD CO.

Manufacturers of
PAINTS • VARNISHES • INDUSTRIAL
FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES:
PITTSBURGH, PA. • WAREHOUSES:
BOSTON, BUFFALO, DETROIT, NEW YORK

20x36-in. in size and a water rinse compartment that will accommodate two barrels. In conjunction with this unit, the metal-finishing department maintains a cleaning machine which uses monel-metal barrels of the same size that are used in the plating units.

Handling and Processing Small Parts

Parts first are loaded into the cleaning barrel and then, by electric hoist, moved to an alkali cleaner tank. This machine is used for small parts such as screws, nuts, bolts, pins and other components of precision instruments. After five minutes in this tank the parts are moved into a hydrochloric-acid pickling tank to remove rust. After rinsing in water the units next go into a sodium cyanide solution to remove the film left from pickling. This barrel then is placed on a transfer stand and the parts are moved from the cleaning to the plating barrels and finally to the plating unit which is a tank of approximately 15x4-ft. Average time of plating in this unit is 30 minutes.

Following this operation the small parts are transferred to a rinse unit and then to the unloading stand where they are dumped into small baskets each of which holds approximately 15-lbs. of material. At this point in the process an operator takes the loaded baskets and puts them through bright-dip operations necessary to obtain a brilliant surface which is much less susceptible to finger prints and stains while going through the plant's assembly departments.

4) Minneapolis - Honeywell also has a still plate line for tin plating, black nickel, white nickel, and copper plating. For this section of the finishing department there

Spray-painted tank periscope holders are hung on racks and moved between banks of infra-red lights to quickly dry and bake the protective coating.

is one preparatory and one drying line used for all plating tanks. Tin plating is employed for internal parts of valves and bellows and other devices that are submitted to corrosive conditions when in operation.

Black nickel plate is used for brass or bronze parts where a black finish is desired for optical reasons, for example, on the insides of all telescopes and other fire-control instruments where it is necessary to cut down the glare of all internal moving parts.

Many Different Finishes Used

Copper plating is used as a base plate for nickel finishing when applied to steel because of the obvious adhesive advantages to be obtained.

5) Several individual barrels are used for small lots of work: Three of these barrels are for tin plating; three are for nickel plating; two are for copper and

two are for zinc plating. All of these units are served by one central preparatory and drying line.

6) A Bonderizing line also is in constant use. Here parts are cleaned, Bonderized and dried, ready for spraying.

7) A line for black rustproofing is used to finish steel parts with a black iron oxide coating for optical devices, such as the insides of certain optical instruments which are not exposed to the elements.

8) There is a bright dip and cleaning line also established where brass parts are processed either for final finishing or as a preparatory finish to spray painting.

For all of the plating operations just mentioned, direct current is used. This is supplied by four motor-generator sets having a total output of 18,000 amperes at six volts.

A sand-blasting machine is included in the metal-finishing department's equipment. It is used mainly on ordnance work to slightly roughen certain critical surfaces before paint spraying. Polishing equipment is used on gears and similar moving parts in order to make possible a smooth running instrument.

Quantity of Materials Used

In an average month Honeywell's finishing department will use 5000-lbs. of zinc ball anodes, 200 carboys of nitric acid, 400 carboys of muriatic acid, 200 carboys of sulphuric acid, and 1000 gallons of various enamels. These materials do not represent total consumption but the list does include the major finishing acids, metals and paints in constant use. Although this total is not impressive when compared with the consumption of many commercial plants, it represents a rather sizable figure when consideration is given to the fact that the company operates a finishing department only to process its own instruments . . . all of which are small precise weapons or automatic heating-control instruments.

Plating Room Control

The plating department maintains a control laboratory to control the strength of all solutions used so that these solutions are kept to the most efficient operating concentrations. A sample of the solutions from each tank is checked every day and the necessary additions made. Because of this control the company is able to maintain solutions at maximum efficiency and obtain a rapid plating cycle. For example, in 35 minutes of zinc barrel plating the department obtains an average thickness of 4/10,000 of an inch; on the automatic zinc plater this same thickness is obtained in 7½ minutes.

All solutions are filtered at least once each week to remove all sediment which might cause an inferior plating pob.

Paint Mixing; Spraying Dip-Coating; Drying

Honeywell operates two modern spraying rooms. The first of these is used primarily for the company's regular products such as its thermostats. Here are eleven spray booths, an auxiliary room for lacquer dip-coating and a paint-mixing room. In the latter one operator is in charge of mixing paints for all sprayers, according to the engineering department's specifications. Spray operators obtain their paint from this room in small lots when spraying bronze coatings so that the lacquer will always have the same

The Solution to your Wrinkle Finish Problem

ENTERINKLE

A SUPER WRINKLE ENAMEL FOR PRODUCT FINISHING

- **Contains No Alkyd Resins**
- **Available Without Priorities**

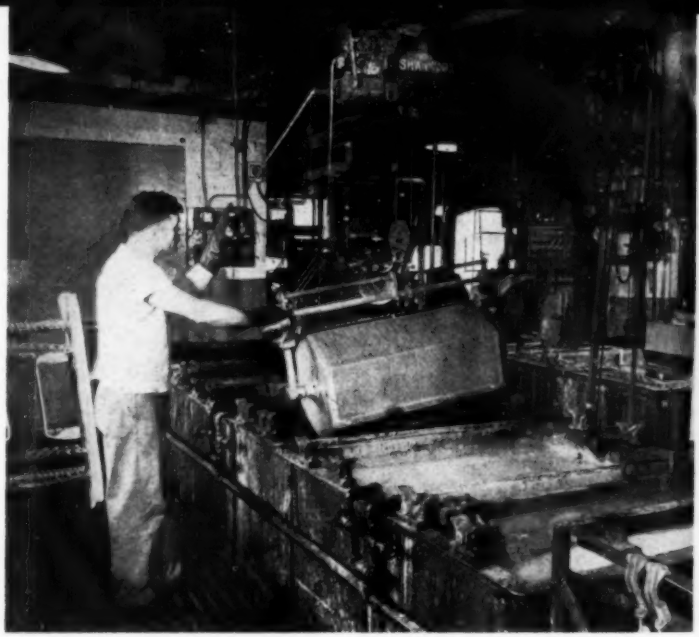
TOUGH - DURABLE - ANY TEXTURE
Adaptable to Any Production Schedule

NOTE: Non-Alkyd Black No. F4264 and Non-Alkyd Olive Drab No. F-4273 have the acceptance of the Army Service Forces under the TAC-ES-680b Specifications.

Write Our Industrial Finish Division

YOUR INQUIRY WILL BE GIVEN PROMPT ATTENTION

ENTERPRISE PAINT MFG. CO.
PEORIA & VAN BUREN STS.
CHICAGO 7, ILLINOIS



Here a workman is using an overhead traveling hoist to transfer barrel of parts from one processing tank to another—in the plating department.

composition and will not "settle out." When using Kristokrak and other paints, a 10-gallon pressure tank is used by each spray operator.

The other spraying room houses nine spray booths and a conveyorized infra-red baking unit. This system, set in a great oval, is 140-ft. long. Half the distance is a tunnel made up of a battery of 2500 infra-red bulbs. Speed of the conveyor is adjustable from ¾ to 4½-ft. per minute, depending upon the size of the parts to be dried and the chemical composition of the paint. By taking just one step from his spray booth an operator can hang a freshly painted part on the conveyor rack, and within a few minutes it will be completely dry and ready for shipment — or, as the case may be, for further assembly.

Typical Example of Finishing

The Mark 74 telescope being built by Honeywell for the Navy provides a typical example of finishing operations required for the exacting instruments being turned out by the company for the Army and Navy. This instrument consists primarily of a large bronze casting. Its interior surfaces are given a baked enamel finish to meet optical requirements of a black coating and also to obtain a surface easily cleaned of lint which might later fall upon the optical elements and distort vision. So precise is this gunsight that a speck of dust 1/10,000 of an inch in diameter would look like a bomber if it became located on the reticle or sighting pieces of the instrument.

This internal finish consists of two coats. The first coat of enam-

Paasche
AIRPAINTING EQUIPMENT
Airpainting parts for the famous Curtiss Caravan in a plant somewhere in Kentucky. Paasche Equipment speeds the job!

WINGS for FINISHING

When Paasche Airpainting Equipment works for you, Finishing flows along at top speed. Paasche High Production Airbrushes provide fastest application of painting and finishing materials. Exclusive design of Paasche Material Tanks saves you time in paint handling.

But time-saving is only one of the many advantages gained. The Paasche Water Wash Booths (interior shown above) reduce fire hazards, provide healthier, cleaner surroundings for workers, conserve paint and save cleaning time and cost.

Send for your copy of the new Paasche catalog and at the same time get the assistance of our experienced engineering staff. We will be glad to assist you on your difficult or unusual Finishing problems and help you attain maximum production.

Write PAASCHE AIRBRUSH COMPANY,
1917 Diversey Parkway, Chicago 14, Ill.
Paasche Airbrush (Canada) Ltd.
110 Elm Street, Toronto

PUT THIS GUN IN THE HANDS OF YOUR FINISHING MEN

The Paasche CUB High-Production Airbrush provides extra rapid application of all painting and finishing materials; perfect atomization and spray pattern; it's easier to handle too, weighs only 22 ounces.

Paasche AIRPAINTING EQUIPMENT

Manual, automatic and special airpainting equipment, airfinishing booths, pressure regulators, airconditioners for compressed air lines, air dusters and stripers.

el is a black pigmented synthetic enamel. After application, this coating is baked for one hour at 350° F. by either infra-red or gas oven heat. On top of this a thin coat of non-pigmented clear synthetic enamel is applied and baked one hour at 350° F. The clear material of the top coat serves the purpose of giving a hard surface which will have no pigmented particles that might possibly become dislodged if scuffed or touched and thus fall onto the optical elements.

Masking Is Necessary

A complex shielding arrangement has been found necessary in order to shield many of the machine surfaces from paint during spraying operations. On some telescope bodies, including the Mark 74, 20 shields are needed, but company methods engineers have determined that even with the time consumed mounting and taking off the shields, the parts can be painted several times more rapidly than if the instruments were painted by hand and no shields were used.

For the Navy most instruments are finished with a black surfacing. The Army Ordnance material is either finished with the standard lusterless olive drab or a green wrinkle enamel.

The company's own controls, as noted above, are finished in black Kristokrak where decorative schemes are not affected; and with a silver bronze for instruments and controls mounted in the living quarters of homes or in exposed locations in offices and commercial buildings.

Fire-Fighter Jeep

A FIRE-FIGHTER "Jeep," designed to protect industrial plants and to serve as an auxiliary unit for urban and rural fire companies, has qualified for a place in postwar safety plans during 18 months of experimental service. The new unit was developed by engineers at Willys-Overland Motors from an early test model of the Jeep. It has been patrolling the automobile plant's more than 2,000,000-sq.ft. of floor space since January, 1943.

During exhaustive tests the Jeep has answered 34 emergency alarms, bringing all fires under control before any serious damage was done. The vehicle has been driven on elevators and carried to every section of the plant from the basement to the roof.

Painted a bright red and outfitted with shining brass and copper accessories, the Jeep is equipped with 350-ft. of 2½-in. hose; two nozzles; two extinguishers; a 500-gallon-per-minute pump; and two lengths of suction hose, the latter to draw water from reservoirs, creeks and sewers.

Fred A. Brown Becomes V.P. of Jones-Dabney

Mr. Fred A. Brown, formerly General Manager of the Grand Rapids Varnish Corp., Grand Rapids, Mich., has been appointed Vice-President and Director of the Wood Finishes Division of the Jones-Dabney Co., Louisville, Ky., manufacturers of "Syntex" lacquers, varnishes, enamels and synthetic resins.

The Jones-Dabney Co., a division of the Devoe and Raynolds Co., Inc., is 90% occupied in the output of required war-production finishes. Mr. William C. Dabney, founder and president of the Jones-Dabney Co., is also executive Vice-President of Devoe & Raynolds Co.

IS THE WORD FOR ARCO PRODUCTION FINISHES

● The navigator wouldn't be so confident of hitting a tiny island "on the nose" were it not for the absolute dependability of his instruments. The buyer of production finishes knows he can have the same confidence in Arco quality. Every shipment of Arco Production Finishes matches specifications exactly, fulfilling—or surpassing—required performance characteristics. Specify Arco and you specify dependability.

Paints for Industry THE ARCO CO.

CLEVELAND, OHIO • LOS ANGELES, CALIF

Painting Steel Ships

INSIDE AND OUTSIDE

BY HENRY NOVAK

A man on the job tells about how surfaces are cleaned and prepared for painting, how various special coatings are applied and dried to protect exposed and covered places on our fabricated steel ships.

Editor's Note: The first part of this article appeared some months ago, in this magazine.

POLISHED brass is left unpainted, with the exception of bells, hose nozzles, label plates and various brass parts of machinery which are exposed to the weather. These brass surfaces are painted dark to eliminate glare or reflection and for camouflage purposes during hostilities. Cast brass is painted to conform to the color of surrounding areas.

Galvanized equipment is treated, prior to painting, with phosphoric acid solution, copper acetate solution, or a commercial material which does a wonderful job of preparing the metal for excellent paint adherence. The treated metal is then washed with clean water, dried thoroughly, primed and finish-coated. It is painted for appearance only. This includes such equipment as is installed in the galley, medical stores and scullery — chiefly racks, tables, shelves, etc.

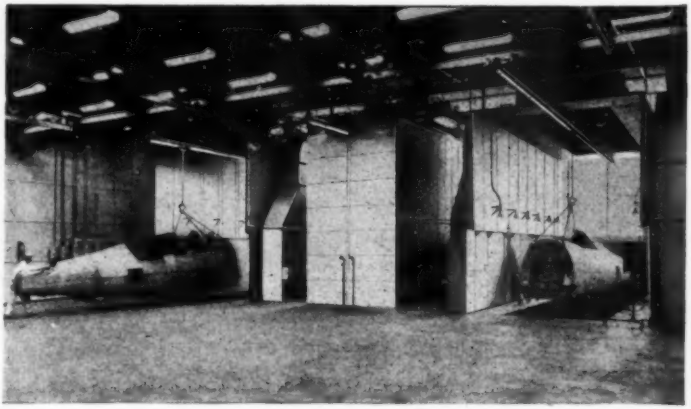
Pipe Line Painting Stenciled Markings

Canvas pipe lagging is given a brush coat of canvas-preservative material colored to match adjacent bulkheads. Ordinary paint is not used, as it would cause the canvas to deteriorate and crack in time. The canvas preservative is waterproof, fireproof and flexible. Two coats of heat-resisting paint are applied to all steam pipes prior to covering. This is done, of course, to prevent any possibility of their rusting after they have been canvassed.

Cold water pipes that will have condensation, which might damage equipment or inconvenience personnel, are covered to prevent condensation at those locations. Cork painting is generally used for this work. An "undercork" paint is brushed on and while it is tacky the ground cork is applied and patted on by hand. On large areas special spray equipment is used to apply the cork, in a manner similar to spraying flock.

All piping is lettered for identification by stencils, with black striping paint to indicate contents and arrows to show the direction of flow.

Pressure tanks of 2-gallon capacity and medium-sized guns are



Complete PAINT ROOM *Designed by* PETERS-DALTON *for* AIRPLANE FUSELAGE

The paint fumes are drawn through floor grating, across the surface of water in tank; up through the Hydro-Whirl washers in each side, then to exhaust fans mounted in roof truss.

Each booth is equipped with fresh-air make-up system to furnish air-conditioning for both booth and paint room.

After painting operation, fuselage is pulled from booth on tram rail and pushed into drying oven, as shown in center of picture.

We invite you to call in our engineers to discuss your plans whether you contemplate a new plant or expect to reconvert your present one. We shall be glad to help you either in an advisory capacity or to help lay out a complete processing system.

HYDRO-WHIRL

PETERS-DALTON *Incorporated*

626 EAST FOREST AVE. • DETROIT 1, MICH.

(Formerly Industrial Sheet Metal Works)

MFRS. HYDRO-WHIRL DUST COLLECTORS AND SPRAY BOOTHS—INDUSTRIAL OVENS, MECHANICAL WASHERS AND VENTILATING SYSTEMS

used for spray painting of the interiors of steel ships. Two men work from each material tank. While one dusts and prepares the surface, and also covers some equipment with drop cloths, the other operates the spray gun. Every so often they alternate jobs. Occasionally they go up to the main deck to get a breath of fresh air if ventilation is poor. The main thing is to use low air pressure to reduce to a minimum the spray mist or fogging. In many cases internal atomizing spray guns are used.

The men generally wear activated charcoal respirators and spray hoods which have an air line attached near the spray gun line, with a regulating valve at this point. In the hood there is a small pipe with many openings which blow the air past the wearer's face, thus always insuring clean fresh air. This is ideal for working in a confined space.

At present, sign painters are employed to do the lettering and labeling. Staterooms, compartments, holds and lockers are lettered for identification and to indicate capacity. For instance:

6435 - GALLONS — 23.9 T

The capacity is given in gallons and tons. The lettering is put on the manholes. In many localities decalcomanias are used in place of the hand lettering. This saves much time and money. The dogs (handles) on the doors are left unpainted because they are constantly used and the paint would soon wear off.

Cold and Fog Conditions Harmful to Paint Adhesion

No painting operations are performed at temperatures as low as or below freezing. Paint will not adhere well to cold steel. It also is a poor policy to paint when humidity is high, especially on foggy days, as the steel surfaces become saturated with moisture.

Where such conditions prevail the temperature should be increased and the air in the compartment should be moved by fans to make and keep the surfaces dry. I have seen condensation so bad in compartments that the water dripped from the underdeck and also ran down the bulkheads.

When painting underwater sections of any ship, a record is kept as to the temperature, atmospheric conditions (such as dry, damp, rain, snow, etc.) and the quantity of paint used. This record is turned in to the Navy supervisor at the yard the day the ship is launched.

Brush-Paint Frosted Surfaces

When surfaces are frosted and painting must be done, brush painting should be used in preference to spray painting. Spraying on frost just "sandwiches" the frost between the steel and prime coat of paint. There then is no bond of the primer to the steel, because your primer is just "blown" on to the coating of frost. By using a brush you brush away most of the frost and work the paint through it to the steel surface, and therefore obtain better paint adherence.

During most of the winter months, where steel surfaces are painted outside or in unheated buildings, the primer and paint should be brushed for best results. The State of Illinois does not allow its steel bridges to be painted when the temperature gets below 40° F. Some other states and some structural steel firms do not allow painting on steel when temperatures go below 50° F., so you

A distinctly new prime coating for metal, with new advantages and economies.

Spray it on . . . or dip it.
Dries dust free in 5 minutes.
Dries to handle in 10 minutes.
Dries to practical hardness in 20-30 minutes.
Gives hard satin finish.

No sanding required before lacquer or other top coating. METL-PRIME adheres to any metal surface . . . won't lift and it won't bleed through even a white lacquer enamel finish.

METL-PRIME is an Egyptian Product which is an assurance of high quality always. It meets war industry's exacting requirements and offers high possibilities in post-war manufacturing.

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EGYPTIAN
SPECIALIZED PRODUCTION FINISHES

see how important it is to watch the temperature and atmospheric conditions when painting operations are under way.

Scaffolding Used by Ship's Painters

Naturally the men must have something on which to stand when painting surfaces beyond easy reach. Extention planks are used with excellent results. No trestles are needed in the holds, as the planks are extended from the outboard serrated angles to the inboard angles. Tilley adjustables are used, with savings in time in setting up scaffolding. These are easily handled and are adjustable to various heights. They are used in large spaces to be cleaned and painted. Sometimes casters or wheels are put on them so they can be rolled along as the work progresses. Care must be taken that they are well blocked so they can't possibly roll or move while men are working on them.

For scaffolding on the exterior of the hull and other high places, scaffold brackets are welded to the side of the ship. Steel scaffolds slip through these brackets and planks are placed on them. A wire cable or rope can be used for a backguard. All crafts work from these scaffolds. Painters work on them with their prime coat, both inside and outside. As soon as the welders have completed their work on the exterior, and the painters have prime spotted all burned and rust spots, the hull department chips off the brackets. Painters follow along to wire-brush and prime-spot the places where brackets were removed. This is done deck by deck.

A method of scaffolding for the finish coat on the exterior hull has just recently come into service, although it was suggested about two years ago. At that time it seemd rather fantastic but it is working out well. It is a portable steel scaffold that is built up in sections, with platforms or planks placed at certain heights. With this type of scaffolding two sprayers work on the top deck, two on the third deck, and so on down to the water line. As they all finish their respective sections, the scaffold is moved farther along, and the work continues until the painters have gone completely around the ship. The portable scaffold has wheels on the bottom so it can be moved easily. A track can be arranged and with the scaffold wheels on a track this would help a lot in moving the scaffold. This is the same principle that is used by paint contractors for painting sash, etc., and high places on the interiors and exterior of high buildings.

The swinging stage is also used with falls, block and tackle. We use 24x2-ft. stages and also use light weight 24-ft. toothpick stages. While painting the hull ocean gray, three to four stages are set. As soon as the first stage is set, the painters begin their work. As one set of spray men complete their work they move on to the next vacant stage; then the scaffold men move the one they have just left, next to the last stage, and so on around the ship. Toothpick stages and adjustable tilleys are used for the water line point cutting in.

Inspection and Paint Job On Ship's Bottom

After the ship's bottom has been thoroughly inspected for sound welds, holes and weak spots it is given one coat of zinc chromate primer. Then, after a thorough drying period, one coat of special

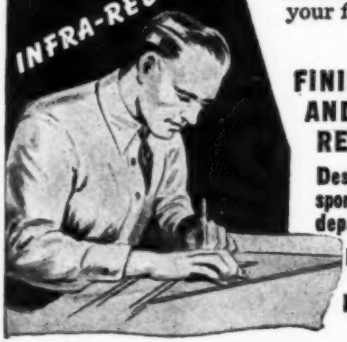
HOW MUCH CAN YOU SAVE with One of These Despatch Finishing Systems?

DESPATCH CONVECT-O-BAKE

CONVECT -O- BAKE

SURG-BAKE

INFRA-RED



Replacement of "all purpose" ovens by new *specialized* finishing systems has already revolutionized many finishing departments, bringing costs way down.

That's why it will pay you to modernize your own department now with one of the *four* new finishing systems developed by Despatch.

One of these is certain to be particularly suited to your *individual* finishing needs with performance characteristics specially adapted to your production set-up. You're assured of far better results in finish baking, in less time and at less cost than with older prewar systems.

Let us estimate your probable savings, installation costs, etc., after analyzing your finishing needs. *Write for details.*

Complete

FINISHING SYSTEMS PLANNED AND INSTALLED UNDER ONE RESPONSIBILITY!

Despatch Engineers will assume full responsibility for installing in your finishing department the most modern types of...

RUST PROOFING EQUIPMENT
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DRYERS • SPRAY EQUIPMENT
FINISH BAKING OVENS

Also ground coat and enameling furnaces for ceramic finishes

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DESPATCH
OVEN COMPANY MINNEAPOLIS

heavy-body anti-corrosive paint is sprayed on. I have seen some sprayed jobs where the low spots still showed the yellow zinc chromate primer, where the sprayer apparently held the gun at an angle and didn't lap back with the gun held at the opposite angle. The sprayer must be sure to have all zinc chromate primer surfaces covered with anti-corrosive paint.

After the anti-corrosive paint has dried thoroughly (length of drying time depending on weather conditions) one coat of either hot or cold plastic anti-fouling paint is sprayed or brushed on over the anti-corrosive paint. These paints should not be reduced. They must be applied full body. The only time any of the paints can be thinned is when they have bodied-up due to evaporation of the volatiles. Then you must be sure that you are using the correct thinner and that you are thinning the paint to conform to the viscosity designated by the paint specifications. For instance, zinc chromate primer often needs reduction and the formula we work by calls for Grade 1, petroleum spirits. This is equivalent to oleum spirits. VM&P naphtha should not be used, as it is quite dangerous to use in confined spaces where men are painting—and where welding and burning operations are going on nearby. This could cause an explosion and fire by igniting the vapors from the paint.

Anti-Fouling Paints; Need for Quality Job

Ordinary anti-fouling paint is so heavy that it would be difficult to force it through a 50-ft. or 75-ft. fluid hose without special equipment. It would be especially so during cold weather, when the paint gets heavier, and when the hose is lying on the snow, ice and cold steel. There is special equipment that can be purchased or made, to spray these heavy paints. One type is the heated pressure tanks, as manufactured by some of the leading spray equipment manufacturers. The paint is heated to 100°F. and sprayed, using the circulating system, thereby always having the paint at a uniform temperature.

The other is the pump system, using special gun set-ups of nozzle, needle and fluid tip. Special high-pressure hose must be used with this pump; otherwise the hose is liable to burst. With the pump system the plastic paint is sprayed cold.

Another "hot paint" is in solid form and must be melted and heated to approximately 300° to 325°F. This is quite complicated. Preheaters are required as well as heating current within the hose to keep the paint melted; otherwise it will solidify in a very short time.

This painting is of utmost importance and should be done with great care. The paint job must be inspected thoroughly, as the painted surface is under water and can't be seen or repainted at will, especially in wartime when a vessel isn't docked as often as in peacetime. Above the water line the paint and rust can be scraped and repainted practically any time. There is a big investment in a steel ship and the only protection it has against deterioration and rust is a good protective coating of paint. Without this it would be a rusting hull in a short time.

Apexior Paint Used to Prevent Electrolytic Action

Prior to priming the ship's bottom, the area around the propellors and rudders, completely from

(Continued on page 52)

WILL SOON MAKE NEWS...

New, finer, startlingly different SPRAYIT products will be ready for you shortly. Reflecting tremendous engineering advances brought about by war time developments, greatly increased research and production facilities, SPRAYIT will offer an outstanding line of spraying equipment, air compressors, spray guns, pumps, insecticide sprayers, air tools, sanders and allied finishing equipment.

The new ELSCO line of electric motors, generators, controls, hydraulic cylinders, valves, controls for aircraft, automotive and other industrial applications will be introduced to American industry at the same time.

Both lines of new products will be made available through leading jobbers.

In winning our Army-Navy "E", SPRAYIT facilities were expanded, new equipment purchased and our personnel enlarged. The fine products you will soon be able to purchase from SPRAYIT will bring you the benefits of this great advancement.

WHERE B-24

Interior of one of the Binks-built booths used for painting major sections of giant Liberator B-24 warplanes.

BINKS

LIBERATORS *are Painted*

Binks Agitator and circulating pumps mounted on top of mixing tanks which supply paint spraying booth shown to left.

Of gripping interest to all is the sight of the great "engines" of war turned out on the American production front and used by our fighting forces. And, a keen satisfaction comes from the knowledge that nothing is spared to make them the finest that engineering thought can devise and human skill construct.

So it is reassuring to find, in this connection, that fast, high quality painting of Liberator B-24 parts, in the new San Diego plant of Consolidated Vultee Aircraft Corp., is made possible with Binks modern spraying equipment as indicated by the accompanying photographs.

At strategic locations throughout this up-to-the-minute plant are to be found huge Binks Dynaprecipitor, production-speeding spray paint booths, constant-supply paint tanks with efficient combination agitator and circulating pumps . . . and a host of other items of Binks design, required for the best spray painting in each particular task.

Binks' broad prewar experience has been of important value in the design and construction of paint spraying equipment, large and small, for war production. It is clear that the accumulation of experience resulting from expanded activities of the present will be a benefit available to all in the solution of postwar painting problems.

When you are ready to take advantage of this comprehensive and comprehending service, you will find a helpful Binks engineer located near you, and you may consult him without obligation.

UFACTURING COMPANY

YORK • DETROIT • SAN FRANCISCO • PHILADELPHIA • PITTSBURGH • CLEVELAND
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port to starboard side and to the waterline edge, is given two coats of black Apexior* paint to eliminate galvanic action. This is supplied in lieu of zinc protector plates. The paint should not be applied too far in advance, as the sun's rays deteriorate the paint; still, it must be well dried between coats. If it hasn't dried sufficiently the other paints applied over it will check, as always happens when you have a "long" paint underneath and a "short" paint on top. This has occurred with certain obsolete anti-corrosive and anti-fouling paints, and manufacturers have recommended other bottom paints for this reason. I believe it will not occur with the plastic bottom paints, as they are quite "long" and are specified by the Navy.

The ship-bottom paint is usually applied four or five days before launching. We must take advantage of the weather; it wouldn't do to paint while it is raining.

The plastic anti-fouling and anti-corrosive paints are manufactured by Navy yards only, to absolutely insure uniformity and exact manufacture according to formula. The interiors of sea chests are painted the same as the ship's bottom, to insure freedom of fouling with barnacles and marine growth. In some cases they are painted with bituminous coatings.

The outboard shafting, just forward of the propeller, is given two coats of zinc chromate primer, one coat of anti-corrosive and one coat of cold plastic anti-corrosive.

There are various paints that can be used for fresh water tanks. One is a phenolic varnish — two coats baked on the steel at 225°F. for two hours. Then there is a white plastic paint that must be applied hot. It is heated to 400°F. With special equipment it can be sprayed on large flat surfaces, but it must be brushed on angles, etc., that can't be reached with the hot plastic spray gun. Only one coat of this material is required.

*Apexior is used to insulate stern areas from pitting and corrosion caused by electrolytic action of bronze propellers in salt water—when dissimilar metals such as bronze and steel are in close proximity.

Painting Interiors of Fresh Water Tanks

The Gilsonite water-tank paint can also be used. Two coats are required for this work. The paint is black, and workmen must be very careful to see that all surfaces are thoroughly coated on each operation, especially so on the second coat. It would be difficult to see where one left off, and many holidays may appear. If the interiors of water tanks are not coated properly the water will become rusty. Another important matter is the drying of these coatings. They should be absolutely dry before the tanks are filled with water. Care must be taken to have the first coat dry thoroughly before the second coating, so that no case-hardening occurs. Otherwise the last coat will have a tendency to check and crack.

A new improved paint has been developed for fresh water tanks and is now specified by the Navy Dept. It is a zinc dust paint. Metallic brown paint is not used much for fresh water tanks, because much of this paint would peel off.

Ventilation During Painting and Accelerated Drying Needed

Continuous ventilation should be provided in the tanks, during painting, so as to remove the saturated foul air while the paint is drying, and to continually introduce clean fresh air to replace the foul air,

"DURELASTO" is the name of a new wood finish that's going to mean a great deal in the solution of wood product finishing problems.

Developed since the start of the war, we have kept it under wraps as its development proceeded. It might not be perfect as it stands (for example, we are working to speed up rubbing time on it right now). However, here is what it will do:

"DURELASTO" comes to you in liquid plastic form, in clear, white and colors, which you reduce to 35% solids for spray or roll coat application. One coat over "DURELASTO" Sealer gives a full-bodied finish — curing perfectly in from one to two hours at 135° to 150° F. Colors have excellent hiding quality; gloss and clear flats are brilliant. Resistance to acids, alkalis, alcohol, water and heat is exceptional and durability in use is unbeatable. Best of all, "DURELASTO", with all its superior qualities, costs no more per square foot finished.

You'll want to learn more about "DURELASTO"—just what it can do for you — and how. So why not write today and let us give you more details?

ZAPON DIVISION
ATLAS POWDER COMPANY
Eastern Sales: Stamford, Conn. Western Sales: No. Chicago, Ill.

ZAPON
REG. U.S. PAT. OFF.

PRODUCT FINISHES... *Doing Tomorrow's Job Today!*

so as to insure a thoroughly cured film. These tanks are then sterilized thoroughly.

Infra-red ray drying hasn't been tried here, but I believe that this would actually cure the film in just a fraction of the time now required.

Plimsoll Mark; Lettering On Outside of Ship

The draft marks, lettering, and Plimsoll mark are weld-beaded to conform to the figures and letters. A small bead approximately every 3-ft. is welded completely around the waterline. This is placed for locating the height of waterline when dry-docking and repainting the underwater portion. The marks and lettering are painted with special paint by brush painters. White is used on the underwater portion and black is used above the waterline on the gray paint.

The Plimsoll mark in the center of the ship above the water line on port and starboard side is painted black. This is the load waterline for different waters. Atlantic ocean in winter, Pacific ocean, etc. This is for the insurance of the ships on how much they can be loaded in certain waters.

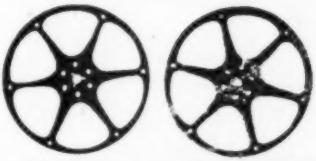
Each shot of chain is 15-fathoms or 90-ft. The shackle or connecting link farthest away from the anchor of the first shot is painted red, and each link on both sides is painted white and has one turn of galvanized wire around it. On the second shot, the shackle or connecting link is painted white, and two links on both sides are painted white and the last white link on both sides has two turns of galvanized wire around it. The shackle or connecting link on the third shot is painted blue and three links on each side of the shackle are painted white and there are three turns of galvanized wire around each last white link. This system of identification continues on, starting again red, white and blue. For each additional shot, we paint an additional link white on each side of the shackle and add another turn of wire on each last white link. For instance, on the 8th shot, the shackle would be white and 8 links on each side would be painted white, and there would be eight turns of wire on each of the last white links.

However, on the last chain, or bitter end, that is attached in the chain locker, we continue as with the others, but the balance of the links, after painting the white links, are painted yellow. On all other shots the balance of links from the white ones are painted anchor-chain black.

This painting is done so the depth of the chain in the water can be determined easily by the colors and white links being dropped. The yellow shows that they are on the last link and can apply the brake and stop the anchor before doing any damage.

Paint at War—Some staggering figures on the material use of finishing materials were cited recently by *Paint Logic*, the magazine of the Paint Dealers Asosciation of New York. A battleship requires over 50,000 gallons of paint, varnish and lacquer, we are told, while a heavier cruiser consumes 8,000 gallons. Thousands of other items—from jeeps to artillery shells—receive a paint coating. You might remember these statistics the next time your supplier falls behind on his deliveries to your shop!

Do It Right... IRIDITE!



Have a MAC DERMID INCORPORATED Service Engineer located in New England, show you how to protect and improve the appearance of your zinc or cadmium products with this new, easily applied protective chromate coating. Among its special features are:

- ***May be rinsed and centrifuged after use.***
- ***Forms a new protective base prior to painting zinc or cadmium surfaces.***
- ***Will never pile up or form adhesions.***
- ***Can be formed without chipping or flaking.***

*Sole New England Distributors

Compounds and Equipment for Metal Finishing

MAC DERMID
INCORPORATED
WATERBURY 88, CONNECTICUT

From War Paint Setups to Decorative Finishing

WHEN we reconvert our product - painting operations, after the European war is at an end, the problem of transition will cover a lot of angles. First, there will be the change-over of machinery, or retooling for new products that will be turned out. One wonders just what will become of the elaborate setups that have been installed in the larger plants all over the country.

I believe that some manufacturers will take on the making of items which can be made advantageously with the machinery they now have on hand. Painting and finishing systems will have to be changed in many places, mainly because, at present, conveyors and automatic spray guns are adjusted to handle a specialized job, whereas, after this war, the painting and finishing will take in a great variety of civilian products. In other words, on a given article that will be made, there will be several parts that will require finishing. Some of these parts will require different kinds of finishes and colors, and some will be made of different metals—all of which will pass through a finishing room that heretofore had only one kind of pieces or parts going through, and only one kind of product painting to do. *(Continued on page 61)*

BY CHARLES W. NEILD

MAHON *Built-for-the-Job*

CLEANING AND COATING SYSTEM

specially developed for treating engine parts before shipment overseas . . .

Converts to a MODERN FINISHING SYSTEM

for the Coming Peacetime Operation

Many Finishing and Processing Systems—engineered by Mahon for special war production purposes—now are being revised for peacetime operation—often with only slight change and at surprisingly little expense.

The Mahon engineering staff is cooperating with numerous manufacturers on transition problems. In preparing plans for adapting present equipment to the demands of rapidly approaching civilian production they are accomplishing some highly satisfactory results. Have a Mahon representative go over your equipment with you. You will find the advice and suggestions he is prepared to offer both practical and sound. Your switchover will be made speedily and smoothly—and at a minimum cost. You will have a production line that incorporates the most recent advances in efficient and economical Finishing equipment—insuring a faster, finer output.

THE R. C. MAHON COMPANY

DETROIT 11 — CHICAGO 4

Manufacturers of Metal Cleaning Machines • Rust Proofing Machines • Hydro-Filter Spray Booths • Ovens of All Types • Filtered Air Supply Units • Hydro-Foam Dust Collectors—and Many Other Units of Special Production Equipment—including Complete Finishing Systems

4-STAR FEATURE

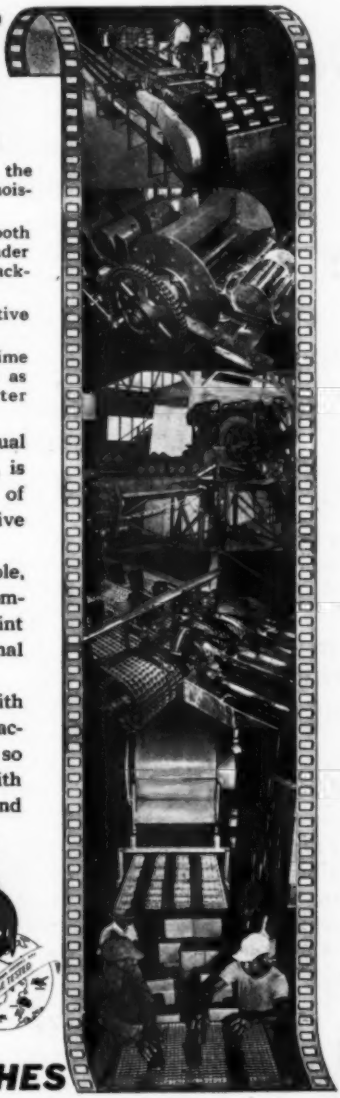
SHERWIN-WILLIAMS helps develop a four-feature pro-coating enamel for the U. S. Quartermasters Corps

DEFEATING THE RISING SUN
These jungle fighters take time out to rest and eat. Notice the absence of any reflective metallic surfaces. Even the tin can is camouflaged by pro-coating because, left shiny, enemy air reconnaissance could estimate the number and concentration of troops by the number of discarded tin cans.

Official U. S. Signal Corps Photo

SHERWIN-WILLIAMS

FILM



1 **FEATURE** It protects against the corrosive action of moisture and salt.

2 **FEATURE** It has a hard, smooth finish that stands up under bumping and knocking during packing and shipping.

3 **FEATURE** It has a non-reflective surface.

4 **FEATURE** It speeds up drying time from five minutes to as short as one-and-three-quarter minutes.

The last important step, prior to actual shipment of canned foods overseas, is the application of a protective film of tough, non-corrosive, non-reflective enamel to the exterior of the can.

Because no such finish was available, the U. S. Quartermasters Corps commissioned the country's leading paint manufacturers through their National Association to develop one.

Sherwin-Williams soon came up with an answer . . . an enamel that is practically "foolproof" . . . that handles so easily it can be applied by canners with existing equipment in all seasons and all climates . . . that can be force-dried or air-dried. Here is another example of how Sherwin-Williams handles a finishing problem. The same thorough service is also available to you. Write Sherwin-Williams, Cleveland 1, Ohio.

INDUSTRIAL FINISHES

Only Two of the

MANY EFFECTIVE USES *for*

REMOVAL OF MAGNAFLUX

REMOVAL OF LAPPING COMPOUND

TRIAD WATER-EMULSION CLEANERS

New developments in these water-emulsion cleaners have brought a much wider range of cleaning to many plants having varied production requirements.

GUARANTEED PERFORMANCE

All Triad Emulsion Cleaners are shipped on a guaranteed performance basis for thorough test on your production.

A few of the applications include:

- ★ Cleaning machined parts in washers for inspection and temporary rustproofing.
- ★ Removal of Magnaflux after inspection.
- ★ Removal of buffing, burring and lapping compounds.
- ★ Removal of pigmented drawing compounds.

Any type or combination of metals may be cleaned in Triad Emulsion cleaners. Solutions are used at temperatures up to boiling, and at working concentrations are free of fire hazard. Surfaces cleaned and dried are suitable for painting.

A test run in your plant may solve that cleaning problem which has given you trouble.

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THE BEST INVESTMENT IN THE WORLD IS IN THIS COUNTRY'S FUTURE—BUY WAR BONDS

Bright Colors in Demand; More Bake Finishes

In many places now, there is just one type of specification finish. In most instances this includes a primer and top coat, either in olive drab or navy gray color. I believe that the color-matching departments in many paint, lacquer and varnish making plants will be overtaxed in getting out all of the colors that will be in demand to satisfy makers of civilian products.

There will be a lot of baked finishes . . .chiefly because many finishing departments are now well equipped to handle this type of work. Numerous infra-red baking systems have been installed. These are quite efficient, in that they can bake out work much faster than the old-type of convection oven. Do not get me wrong on this point. The convection oven still holds its own in its field, but I have noticed that the infra-red system of baking has made great strides in handling many types of work. Then too, some infra-red ovens are placed overhead, so they occupy no floor space. The work is conveyed to, through, and from these ovens. This in itself is an advancement toward the handling of greater production than formerly. [Editor's note: Many recently designed and installed convection-type ovens are also placed overhead—sometimes on factory roofs—and these are all conveyorized.]

More Plants Tooled up for Conveyorized Production

For our conveyorized production systems, much praise can be given. Here in this country we need not take second place to any country, as we have proved to ourselves over and over again. Our systems of conveyorized production have been the means of keeping powerful enemies from our shores. And further than that, we were able to give our fighting forces the equipment and munitions they needed to enter enemy territory and defeat them, so that in a few more months we will hear them saying "Uncle."

This and more is merely due to the fact that we have been able to produce and, in producing, we have been able to supply the needs of manufacturers of war goods with machinery, finishing equipment, finishing materials, and the many angles that go into the heart of war production. Who says that we are not a resourceful nation?

Plastics; Woods; Metals; All Will Be Finished

I believe there will be a great change-over to plastics. The reason for this is obvious. Some plastics require little or no finishing. Novel color designs can be incorporated into this type of material—color effects that would be quite costly to reproduce otherwise. I have inspected molded plastic articles which showed marbleizing and swirl finishes. These decorative effects would be rather difficult to produce on metal, wood or any other solid-color material unless a graining system or decalomanias were employed. The idea I am trying to convey is that in order to duplicate these color designs on other plain surfaces, several handlings would be required and, as everyone well knows, the more handling the greater the cost. The completed plastic is very tough and hard, and it can be finished (if and when this is desirable) in many of the attractive finishes (baked or air-dried) that will be offered after the war.

We have learned much about wood, especially wood veneers—

fir, maple, birch, walnut, mahogany, and many other woods—which go into the manufacture of civilian goods. Finishes will have to be developed to take care of the woods that have open grain; and again, the same for woods that are close grained. Whichever type of wood is to be used, there will be a demand for a type of finish that will give maximum utility and decorative appearance.

There will be as great a demand for metals as before. I am sure that manufacturers of ladies' compacts and the like, will be glad to be free to use brass again, especially the low brass which, when finished, looks very much like gold plating. In many cases the finish on this type of work requires only a good clear lacquer, with perhaps a small amount of gold dye added to give off a brilliance that cannot be duplicated easily with other types of metals.

Cleaning, Rust-proofing Before Painting Steel

Steel, too, will be used in large quantities. We have learned much about cleaning, rust-proofing and painting steel surfaces during the war period. Production setups for the preparation of this type of metal have been improved. Degreasers are extensively used to clean the surfaces of parts and products made of steel. Bonderizing is used as never before. All kinds of cleaning operations have been improved . . . to help produce a firmer bond between the finish and the metal.

We will still carry on this type of finishing after the war. We know now that any articles made of steel will rust; also that cold-rolled steel, due to its smooth surface, will require a type of primer that will give the best adhesion; while hot-rolled steel will require a different treatment in application. In some instances a filler will be required to fill in the depressions, etc., that are present in this type of metal, to get a good finish.

To sum it all up, manufacturers of lacquers, synthetics, varnishes and the newer types of finishing materials that will appear on the market, will have plenty to do in supplying the needs of manufacturers of civilian products after the war. Undercoats will have to be offered that will give the best service on the articles to be finished. As mentioned before, top coats will be a riot of color. Undercoats and top coats will be available in both air-dry materials and baking materials; the latter will be in great demand due to the fact that most plants are now well equipped to do an excellent baking job.

We can look forward to an era that will bring business to a brighter outlook than we have ever known before. Let us hope that this will not be too far in the offing. We will be sure of one thing: We can look with pride to our boys when they come marching home with Victory on their banners. We can all say, "Well done."

Army-Navy "E" Awarded M. S. A.

Rear Admiral C. H. Woodward, USN (Ret.), of Washington, D. C., Chief of the Incentive Division of the U. S. Navy, was the principal speaker at the award of the Army-Navy "E" to Mine Safety Appliances Co. in Pittsburgh on Sept. 16. Admiral Woodward presented the "E" pennant. Awarding the "E" pins to M. S. A. employees was Lt. Col. Robert C. Downie, Chief Officer, Pittsburgh Ordnance District. Mr. George H. Deike, Company president, accepted the Army-Navy "E" on behalf of M. S. A. employees.

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☐ *How to speed output and save materials*

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MAI

e INVISIBLE "FEATHERS"

Or how a Du Pont War Service Man solved the problem of a gritty finish

A plant making metal ammunition boxes and finishing them satisfactorily by dipping. Suddenly, instead of being smooth the finish developed a rough and gritty appearance. The manufacturer was not sure what was causing this, so he cleaned his tanks thoroughly and filtered the materials. But within two days the finish was just as gritty as ever. Then he called on the Du Pont War Service Man for help.

After a complete investigation of the finishing procedure, the Du Pont man sent a sample of the gritty finish to the Du Pont laboratory for analysis. By painstaking sifting, washing and drying, a number of minute particles were isolated. When examined under a microscope, a formation was discovered characteristic of feathers. When the particles were burned, the odor further confirmed this suspicion.

With this information, the Du Pont man set out to discover the source. In the same box with this box manufacturer he discovered a mattress factory. Fine particles of down were eddying from the windows and being blown to the nearby metal box plant. Upon the Du Pont man's suggestion, the mattress factory owner was asked to install filters over his windows and the metal box plant did the same. Thus the mystery was solved.

There are many instances when ordinary finishing knowledge is not enough to track down trouble. That's when the Du Pont Service man can help you. His wide experience and broad knowledge has taught him the many variables—the unusual conditions affecting finishes. When you have a finishing problem, call on him for help. Just write to:
E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington 98, Delaware.

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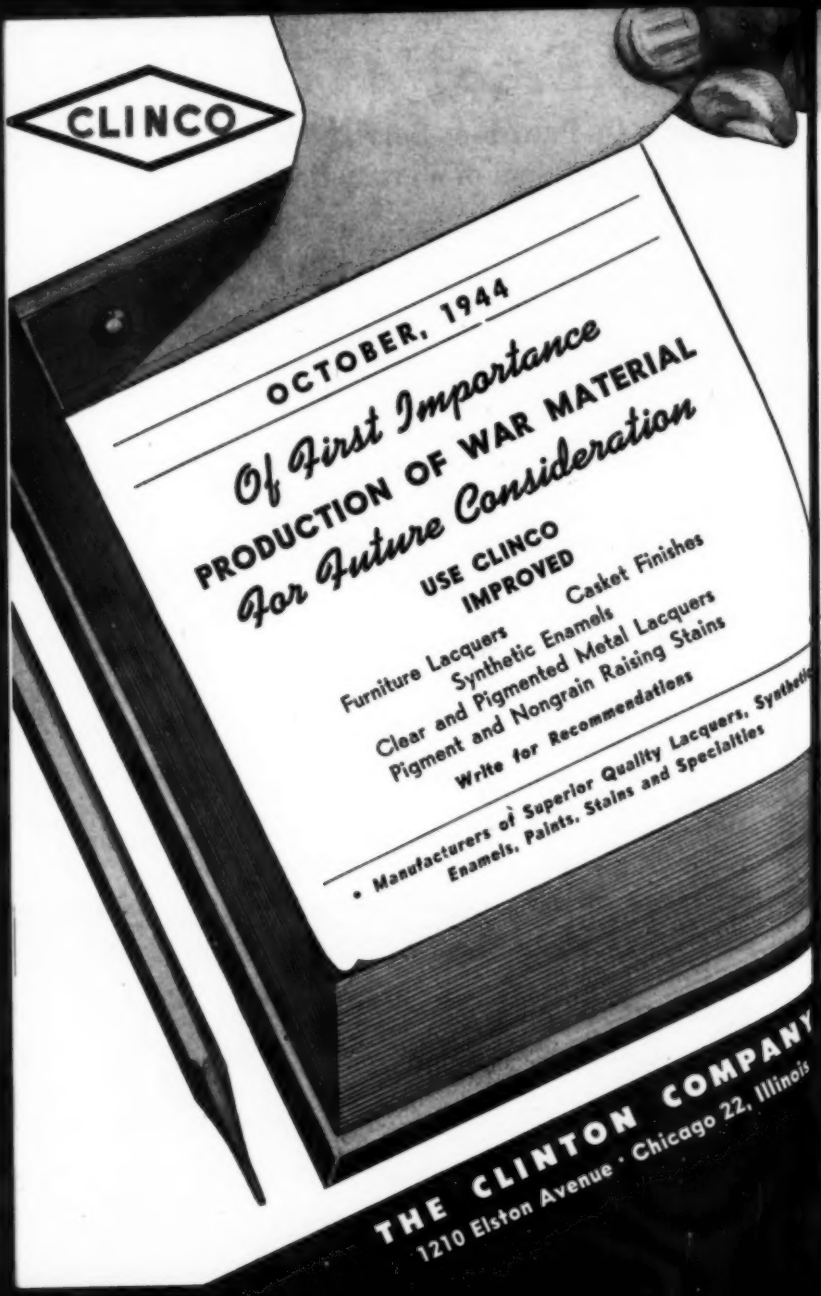
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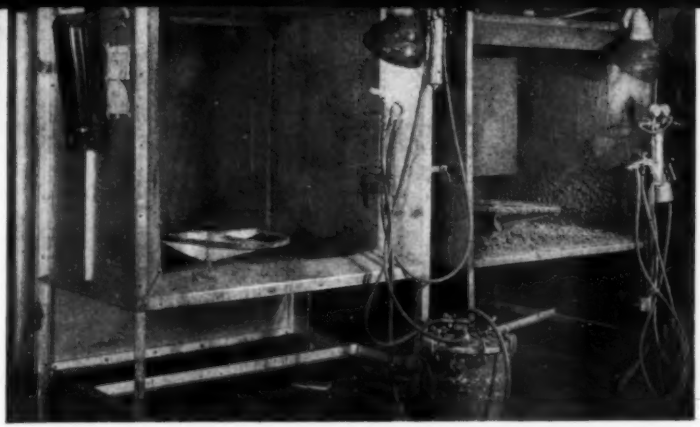

In production, the adhesive and flock should be sprayed in separate booths.

Finishing With Flock

The technique of preparing surfaces to be covered with flock, spraying flock properly, reclaiming and using overspray; air pressures to use, causes of faulty flock finishes, limitations of a flock coating for utility or for decoration.

BY RUFUS J. FAIRBURN
Zapon Div'n., Atlas Powder Co.

FLOCK consists of pieces of yarn or fabric which have been uniformly cut to very short lengths. When properly attached to paper or cloth the flock finish simulates suede or plush. It is available in cotton, wool, rayon, and a mixture of cotton and rayon. It may be had in white, black and nearly any color.

Cotton flock is cut very short and is often used to simulate suede. Rayon is usually much longer and is used to simulate plush. Rayon flock has a silky sheen, whereas cotton is lusterless.

Several years ago a spray gun was developed for applying flock. By spraying it so the ends attach themselves onto a wet paint-like adhesive, it may be applied to any surface to which paint will adhere.

Flock Finish for Utility and Decorative Effects

This sprayed flock finish is finding increasing use as a utility and decorative industrial finish. Used on phonograph turntables, it provides friction to grip the record disc without scratching it. Applied onto wire screen, it makes an excellent grille for radio speakers.

Aircraft and automobile industries find various uses for flock. With it a close approximation of the appearance of upholstering fabrics may be had. Thus it finds use on the backs of glare shields and on other interior accessories.

Manufacturers of toys apply it to toy animals to simulate hair or fur. It is used on bases of bookends, lamps, etc., to prevent bare hard bases from scratching table tops. As a drawer and box lining it prevents tears in silk hose, prevents scratching watches and jewelry, prevents rubbing of hats.

Flock is being used as a sound deadener for soldiers' helmets. It may be used also as a sound deadener inside of housings (with certain limitations). It also finds use as an insulation material.

Used on instrument panels, flock prevents glare and causes indicating dials to stand out clearly. It also finds use on backgrounds for advertising displays. Applied to stenciled designs, flock provides a Jacquard effect on fancy boxes, pennants, shirts and wallpaper.

The Flock Spray Gun

In outward appearance a flock spray gun is similar to a regular paint gun. Of course a larger orifice is required than for spraying liquids. In a flock gun the orifice is about ¼-in. in diameter.

Compressed air in the material cup forces the dry flock through the spray gun nozzle. Side ports are designed to make either a round or flat spray pattern possible. Adjustment valves permit regulating the air pressure in the cup and at the nozzle.

The flock cup may be of metal or glass. The cup threads on most flock guns match those of a regular Mason fruit jar; sometimes a ½-gallon jar is used.

A 10-gallon pressure tank is available as a container when flock is to be used in large volume. With this larger container frequent refilling is avoided, and you get a better job of breaking up the flock before it is sprayed.

Storing and Handling Flock for Best Results

When flock absorbs moisture it balls up somewhat like the leaves of black tea. It should therefore be stored in reasonably moisture-proof containers and kept in a warm dry place. If this is not convenient it is well to dry the flock in a warm oven before using it.

For best results it is desirable to break up the flock just before using it. An ordinary flour sifter is an efficient tool for this purpose. Otherwise, lumps that find their way through the nozzle will give an uneven surface appearance to the flock coating. When a pressure tank is used the compressed air will generally break up the flock without a sifting operation.

Flock Sizing or Adhesive

The adhesive or sizing may be a clear or pigmented liquid. The clear is sometimes preferred for use on wire screen for speaker grilles. A pigmented liquid of approximately the same color as the flock is preferable on solid surfaces. This insures a solid covered appearance.

The sizing should be flat or nearly lusterless. A glossy sizing will reflect light through the flock. It must not surface-dry too fast, as it must remain tacky long enough to receive the flock before setting.

This means that the over-all dry will be somewhat slow, usually over night. This drying time may

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"The Facts on Polymerin" describes the competitive advantages Polymerin-finished products will have in post-war markets. Industry asked us to develop this new type of finish. Our answer is Polymerin—an organic speed-bake enamel with unusual properties of durability and resistance. These qualities may be engineered to meet the requirements of specific products.

Polymerin for refrigerators, for example, is formulated with particular emphasis on lustrous, non-yellowing appearance and maximum resistance to grease and humidity. In the pre-war bicycle industry, baking schedules as low as two minutes in the hot zone were made possible by Polymerin.

Industry by industry, "The Facts on Polymerin" gives many examples of *how* and *why* Polymerin finishes have been used by leading manufacturers. This is information you will want to have before picking a finish for your postwar products. It is yours for the asking—use the coupon below and a copy of "The Facts on Polymerin" will be sent to you promptly, without obligation!

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be shortened by oven drying. On metal, half an hour at 200° F. is a typical bake schedule. The temperature must be kept low enough to avoid darkening or singeing the flock.

Applying Flock in Spray Booths

It is well to keep the flock spraying operation away from other work. Bits of flock may float about in the air and spoil other freshly painted work. This may be true even where a flock reclaiming booth is used.

If possible the sizing and the flock should be applied in separate but adjacent spray booths. Flocking should follow sizing within a minute or two. As a rule the sizing operation is about twice as fast as flocking. Where more than one operator is required, it is usually possible for one man, spraying sizing, to keep two flock sprayers busy. This is true when a solid surface is being coated.

In spraying wire screen, the sizing operation is slower. It has been found that sizing should be sprayed at an angle and from each of the four sides of a wire screen. This cross spraying coats the sides as well as the top of the wire, offering a greater area of adhesive to which the ends of the flock can become attached. This method of spraying may represent the difference between a poor and a good flock job on screen.

Flock finds several uses in radio and phonograph cabinets—for coating wire grilles, cabinet interiors and the top of the phonograph turntable. Illustration, Cellusuede Products, Inc.

Sizing is sprayed on in a medium wet coat. If the film is too thin it does not provide adequate adhesive. If it is too heavy, some of the sizing may soak into the flock and cause it to become stiff and rough.

Flock should be applied in a heavy coat to insure flocking every bit of sized surface. This is the only way that a luxuriant flock finish can be obtained. If too much flock is sprayed it will find no wet sizing and can be easily shaken off for reuse.

After the flocked surface has been thoroughly dried the work should undergo some kind of treatment to remove any flock that has not been firmly anchored. It may be blown or brushed off but perhaps the best method is to vacuum it. The vacuum will cause the flock to stand up, whereas either blowing or brushing may lay the nap. If brushing is the most convenient method, serge cloth will prove fairly efficient.

Reclaiming Flock Overspray

Unless the oversprayed flock is trapped and reclaimed, flock may be an expensive finish. Special flock booths are available. In a paint booth, overspray is exhausted through the stack; but a flock booth traps this exhaust.

If the amount of flocking is too limited to justify a special booth, some other method of preventing waste may be found. The exhaust

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Johnson's Wax-O-Namel, the paint that actually contains wax, is a superior finish that gives added eye appeal, extra protection against rough handling during shipping, resistance to scuffs and bumps around the home, and repels the damaging action of food acids, fats, and household cleaners.

Applied by routine finishing methods, Johnson's Wax-O-Namel will help sell your product by insuring its appearance. Because Wax-O-Namel contains WAX, the finish remains bright, is easy to clean in store or home.

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fan may be turned off and the flock sprayed in a regular booth. There are two objections to this: It is more difficult to reclaim the flock, and too much loose flock will fly around in the air. Unless the booth is clean, bits of paint may be scraped up with the reclaimed flock and show up on the work when the flock is re-used.

In the absence of a regular flock-spraying booth, and where only a small amount of flock-spraying is to be done, on small objects, a suggested method is to make a box of a design similar to what is shown in the sketch herewith. Place this box in a paint spray booth (with its base at convenient working height) and place the object to be sprayed with flock inside the box. The air suction from the exhaust fan will pass through the portion of the top that is screened. This screen will eventually become clogged with flock overspray (flock to be reclaimed and used again) but it can be cleared by tapping it sharply or by blowing air through it from the top of the air gun. Unless the screen is very fine, flock will find its way through it in surprising volume. Half a dozen thicknesses of cheesecloth make a fair screen for this purpose.

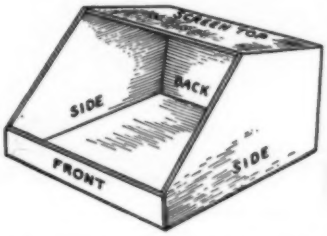
What Air Pressure to Use

Your compressed air lines must be free of moisture and oil. As a precaution, blow out the line before beginning to spray flock. For spraying the sizing or adhesive from a cup gun, use about 60-lbs. of air pressure. With a pressure tank, use about 10 to 15-lbs. on the tank and about 60 to 70-lbs. at the gun.

Less air is usually desirable for spraying the flock itself. With a cup gun, 40 to 50-lbs. of air pressure is about right. Some operators use as little as 30-lbs. With a pressure tank, 5 to 10-lbs. on the tank is about right, and about 50-lbs. at the gun. A man will work faster with a pressure tank and will usually need a little more pressure at the gun than is needed with a cup gun.

Common Faults Encountered In Flock Finishing

A matted and rough surface usually indicates one of two faults. Either a coat of sizing and flock has been applied over a previously flocked surface, or the sizing has been applied too heavily and has soaked up into the flock. If the sizing has become too dry, it is well to spray a fresh coat before applying flock. A lumpy surface indicates poorly broken up and unsifted flock.



In an emergency you can place a box like this in a spray booth and spray flock on objects in the box.

Spots in the flocked surface may be due to the fact that the reclaimed flock used was not clean. Reclaim it in such a manner that dried paint particles and dirt are kept out.

If too much surface shows through the flock, this indicates that probably the sizing was too dry or too thin to anchor sufficient flock. If the article is of wood,

When Uncle Sam Says-

PRESTO, CHANGO!

IT MAY well come just like that—**your** need to convert from wartime production to straight civilian production of goods requiring special industrial finishes.

These finishes cannot be tailor-made overnight — but you can be **ready** if you consult with us **now** and let our planning and engineering staff help develop just the right finish for your V-day needs. No charge for this service, but delay may easily prove costly.

Rely on Reliance

RELIANCE VARNISH CO., INC.

LOUISVILLE, KY. CHICAGO, ILL.

plaster or some other porous or absorbent material, a sealer coat may be needed under the sizing.

Limitations of Flock Finish

A flock finish has only fair wearing qualities. It is not well suited to surfaces that will receive much wear. One concern flocked metal seats for a rowing exerciser. It soon wore off. Another concern wanted to flock footballs for use in wet weather. This idea was discouraged. When flock was used on interiors of housings for electric mechanism, bits of loose flock dropped into the mechanism.

As a curiosity, flock was sprayed onto a pair of shoes. As a leather cloth, to simulate suede, flock is used extensively for this purpose. In this case, however, the sizing was not sufficiently resilient for the purpose. A successful sizing probably could be developed for this purpose if a good reason existed for doing so. If we use reasonably good judgment in finding jobs for flock, it will not disappoint us.

Plywood Box Car Paint Job

THE Great Northern Railway, at its shops in St. Cloud, Minn., is making new box cars of plywood and steel. Several hundred of these cars are already in service.

Outside and inside sheathings are of plywood ⅜-in. thick. The combination of materials results in a freight car which is two tons lighter than the average standard box car.

On the outside, panels of Douglas fir plywood ⅜-in. thick, are exterior-type, made with permanently waterproof binder, and are

Interiors of plywood-lined freight cars receive a spray coat of varnish. Before assembly these plywood panels were dipped in a sealer-hardener.

placed vertically. The sheets are 4x10-ft. in size and extend in one piece from bottom of car to top. Vertical joints between panels are covered by thin metal strips and bolted through to lumber studding. At horizontal points, panels are riveted through to lumber stiffeners. Plywood and steel also combine to form the doors.

The cars are lined with large panels, the wall panels being ⅜-in. thick, while the ceiling panels are 5/16-in. thick. On interior sidewalls, panels are installed horizontally, in contrast to the exterior sheathing which is vertically placed.

The panels, except those used for the ceiling, are first dipped in a clear sealer and surface hardener which serves to waterproof the back of each panel and to tie down and harden the exposed surface. Bottom edges of outside panels are further protected by a heavy coat-

HORN *suggests—*

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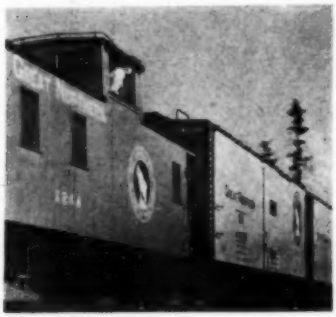

Exteriors of plywood-steel box cars are painted "Great Northern Orange" to distinguish them from other cars.

ing of car cement. After application to car, the outside surface is given a priming coat of iron oxide, followed by two coats of orange enamel.

The entire interior of the car, including floor, is varnished. Before varnishing, the floor is given a heavy coat of sealer and hardener.

Fire Destroyed Plant

Recently fire totally destroyed a large plant engaged in war work involving the use of quantities of a highly volatile flammable liquid. A tank containing the liquid was mounted about 8-ft. from the floor. One morning a leak occurred in the feed pipe, and the liquid dropped to the floor making a nice puddle for fire to start in. And it did, spreading naturally to the dripping stream and the tank itself. Workers in the room could escape through the door behind them—but the fire extinguisher intended to protect them and the plant had been installed opposite the door back of the flaming tank. Flames and intense heat blocked all attempts to reach the fire-fighting equipment, and the fire roared unabated through the factory.

Though much has been written about how to choose the correct fire extinguisher and how to keep it in fire-fighting shape, very little information has been given about where extinguishers should be placed with relation to fire hazard and occupancy.—P. W. E.

Sorts for Color—Electronics is a branch of electrical science, the ultimate reach and importance of which not even those specializing in it dare attempt to forecast. Even the photoelectric end of it has gone a long way in industry. One of the phases of the photoelectric eye which may assume importance in the finishing industries of tomorrow is its use for counting and sorting. Not only will this device sort and count with reference to size and shape; it will do the same thing according to color, and already is very sensitive in making color distinctions. It is easy to imagine that on small parts particularly, varying from beads to chessmen, it might even now be employed with profit. There are firms specializing in photo-electric equipment for practically every purpose.—O. L.

T. R. Nall Joins Southern Varnish Corp.

T. R. Nall, formerly finishing superintendent for a large manufacturer in Louisville, Ky., has joined Southern Varnish Corp., Roanoke, Va., as Technical Service Engineer. Mr. Nall will take over a territory in North and South Carolina, looking after the sales and technical service of the company's customers in that area. Mr. Nall's background and experience in wood finishing qualify him admirably to handle this new position.

Which is Which? One of these safes was finished at 300°F. The other at 180°. From this unretouched photo can you tell the difference in texture, toughness and gloss?

Lowe Brothers Research solves another Finishing Problem

U. S. Army Field Safes were formerly Wrinkle finished by baking 30 minutes at 300°F. in a conventional baking oven. The finish was fine—but the heat was too much for the safe's insulation.

Upon request, Lowe Brothers, along with others, tackled the problem of duplicating the desirable qualities of this Wrinkle finish under a lower baking temperature.

In addition to the temperature limitation there was another factor to contend with. It was the sand blasted surface which the finish had to cover. This surface permitted varnish used in the wrinkle to be absorbed, thereby diminishing the required luster.

Some of the resulting finishes would not bake hard, others would not bake to uniform wrinkle, still others did not have uniform gloss.

Lowe Brothers Wrinkle finish came through with flying colors, texture, gloss and toughness. Baked at 180° for eight hours the Wrinkle finish by Lowe Brothers prevented absorption — covered the rough finish perfectly, and resulted in a smooth, durable and uniform gloss finish over the entire safe.

If you have a finishing problem, either present or future, why not take advantage of Lowe Brothers war-proved "know-how" and years of experience in solving all types of industrial finishing problems?

INDUSTRIAL SALES
THE LOWE BROTHERS CO.
DAYTON, OHIO

Lowe Brothers
WARTIME FINISHES *for Industry*
IN ACCORDANCE WITH U.S. GOVERNMENT SPECIFICATIONS

WATER-WASH COMPOUND MAY CAUSE

Reconversion Headache

BY W. BEACHAM

RECONVERSION headache will take more than an aspirin to cure. I have had several chief engineers tell me lately, "Bah! Nothing to it; we just change this and do that and there she is, ready for paint." But after I have put in my two cents, a few of these excellent fellows have admitted that they hadn't thought of this, or "we will cross that bridge when we come to it." Now I agree with them to a certain extent, about crossing the bridge, but I want to be sure there is a bridge to cross when I get there.

I believe you will agree with me when I say that, in war production, our attitude has been, "To hell with cost and mistakes. Let's get the job under way and cure our faults as we go along." That attitude must be dropped for peacetime operations. To make a profit we must carefully plan details.

A Combination That Will Start a Fire

Suppose we are casting small do-hickeys of plastic, and they need a coat of aluminum paint. The automatic paint line cannot start up until everything else is under way. Thousands of dollars are spent on high-frequency heaters, moulds, polishing wheels, etc. Men are hired and everything gets well under way. The articles start into the finishing department where a nice coat of aluminum paint is sprayed on. We have one or two day's production finished. We all go home and plan what we are going to buy with the profits or wages: but when we report back for work next morning, the plant has burned to the ground!

Investigation shows the power was shut off, gas turned off, and no one was inside the building. "Oh well, it's just one of those things," someone says. He is right. "Just one of those things" that the Chief Engineer forgot or didn't know about. He was spraying aluminum into a dry booth with compound on the walls, or into a water-wash booth with compound in the water. But what kind of compound? "Oh," Mr. Chief Engineer will say, "water-wash compound."

Yes gentlemen, water - wash compound that is strongly on the alkali side, and then mixed with aluminum, forms explosive gases. Brother, it's dynamite! But 99 out of 100 people never stop to think about it.

Digging a little deeper into water-wash compounds, I find that one compound will not answer the purpose of all types of paint for the standard run of finishes. I find that plain water without compound is best used with a good cleaner at the end of the week to remove anything in the manifolds. However, there are some paints that a compound will help, but even then the compound must be made to suit the materials being used.

Let us take the No. 1 headache of prewar times — refrigerator enamel in the high-priced bracket.

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A NON-CRITICAL ENAMEL

No need to wait for the return of alkyds. Here's a superior baking enamel with no critical materials in its formula. Available now for war contracts and essential civilian uses.

Rockloid, non-alkyd synthetic, possesses:

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3. Excellent resistance to salt spray, humidity, alkalies and solvents
4. Fine appearance and color retention.

For full information send for Technical bulletin on ROCKLOID.

NOTE: ROCKLOID may be had also in wrinkle finishes.

Our laboratory facilities and specialized personnel are at your service.

SINCE 1870

STANDARD VARNISH WORKS

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Staten Island, New York

2600 Federal Street
Chicago, Illinois

This enamel sticks to everything worse than a borrowing friend. Even a borrowing friend will leave you after he has what he wants, but the refrigerator enamel just hangs on. Upon mixing this enamel with a fast solvent, I find it is possible to keep the sludge or overspray floating on top of the water for several hours. In this instance I am using a specially-formulated water compound which takes enough of the stickiness out

A man skimming sludge off water in paint-skim tank—sludge deposited here from a water-wash spray booth. Photo from Paasche Airbrush Co.

of the enamel to prevent it from hanging in ribbons all over the booth, and still not damage the sludge—because with this type of enamel, reclaiming is essential.

Upon changing the solvents in this same enamel from fast to slow, my overspray changes. The blasted stuff mixes with the water, or seems to. In other words, the paint particles, instead of becoming surrounded by water, are kicked out by the water, leaving the pigments behind to circulate with the water. Slight changes in the water-wash compound will overcome this difficulty, but this same compound will not work with a slow-bake wrinkle finish.

These statments will be laughed at by certain paint chemists; you know, the ones who wear rubber gloves and are afraid of being smothered from head to foot in their own products. They say, theoretically, I am all wet. Could be, but according to theory a bumblebee can't fly, although, believe it or not, I have actually seen them fly. I can't help but believe the results of my own tests on actual production lines, and not tests done in a laboratory.

W-W Compound Must Suit What You're Spraying

One company I find uses, we shall say, Bar-X brand of water-wash compound. They absolutely swear by that one brand. Another company swears by another brand. Several companies selling compounds are also selling soaps, water softeners, and degreasing agents. By selling a single water-wash compound that works on one paint but not on another, without knowing it, they are doing themselves a great deal of harm. If their water-wash compound does not work to the customer's satisfaction, the customer is going to stop buying this man's other products. It is human nature that if you lose confidence in one product, the other products under the same name suffer too.

It is about time someone rolled up his sleeves and prepared for this private enterprise. . . .

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Flo-Bake

A HIGH SPEED baking synthetic . . . resistant to grease, oil, alkali, alcohol and mild acids . . . Widely used on hospital furniture, Signal Corps apparatus, galley equipment, control instruments, etc.

Bakes in ten minutes at 300 degrees to a hard protective coating with great adhesion.

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BACK THE ATTACK! BUY WAR BONDS!

Fallacy of High-Solids In Lacquer Sealers

A well-informed authority on lacquers and wood-finishing reveals what ingredients go into the make-up of lacquer sealers, explains purpose of each, reminds us why we use lacquer sealers, and points out the fallacy of wanting to use high-solids lacquer sealers.

BY ROLLIN H. WAMPLER

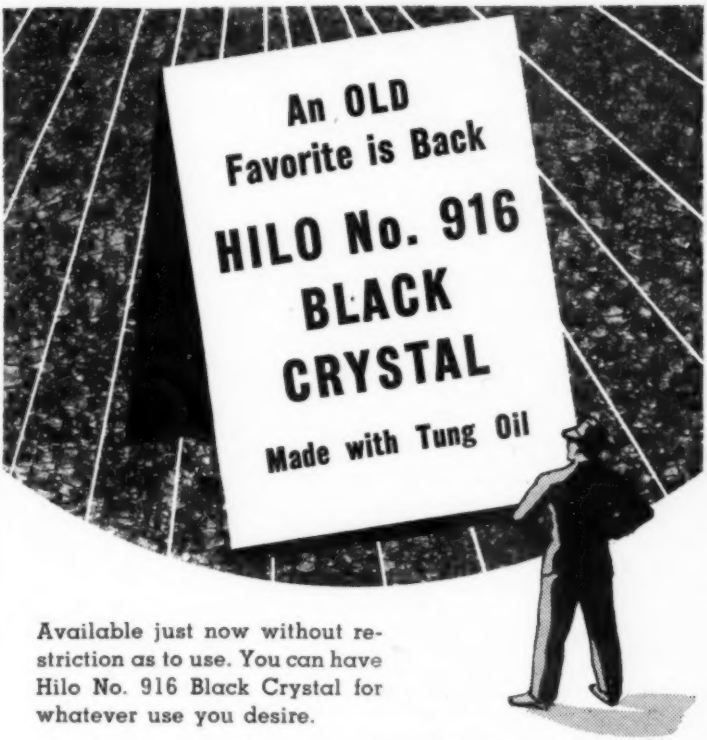
LACQUER SEALERS are almost universally used in the finishing of wood furniture. The sealer coat is applied after the stain, if the wood has small pores and does not require filling. Open-pored woods such as mahogany, walnut, prima vera, and others require filling with a paste filler after staining. In such cases, the sealer is applied after the filler is dry. When the sealer is dry, it is sanded and the final coat or coats are applied.

What Lacquer Sealers Are Composed of

Lacquer sealers are made with cellulose derivatives, principally cellulose nitrate, as the base. The cellulose derivative provides the quick drying, hardness, and sealing properties of the material. But cellulose nitrate has very poor adhesion, shrinks badly, cannot be sanded to a smooth surface, and for other reasons must be modified in various ways. To provide better adhesion and to build up the thickness of the film, resins are added.

Hard, brittle resins of the resin-maleic glyceride type are used to build up the film thickness and to provide the solvent release so necessary to quick sanding. The soft, elastic alkyd resins of the oil-maleic (or oil-phthalic) glycerine types are added in the proper amounts to provide adhesion, elasticity, and toughness without the undesirable softening of the oils and chemical plasticizers. In addition, a small amount of chemical plasticizers is used to provide the elasticity and the chemical homogeneity so necessary for a good lacquer film. Small amounts of such soaps as zinc stearate, calcium stearate, aluminum stearate, and other such pigments are used to lubricate the sandpaper and provide quick easy sanding without pick-up or corning of the sandpaper.

Finally, all ingredients must be put into solution with a carefully balanced blend of solvents which must evaporate as quickly as possible and still provide good flow without leaving heavy ends of solvents in the film, which might spoil the sanding and the adhesion of succeeding coats. Thus the skill



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of the chemist plays a vital part in the satisfactory performance of the product.

A common fallacy that exists in the minds of many purchasing agents and finishing foremen, and even in the minds of some formulators, is that the higher the solids or non-volatile content of the sealer, the better the gloss or body-producing properties of the sealer. This misconception has led many into grief out of which they have had to struggle without any clear conception of what the trouble actually was.

Why You Use L. Sealer; What It Accomplishes

To get a clear conception of what often happens, let us first define the functions of a lacquer sealer. As the name implies, it must first of all act as a sealing agent to seal the surface of the wood. This sealing action stops the "suction" of the wood, which would otherwise absorb some of the finishing coats and produce pin holes and a rough surface.

How can a lacquer sealer do this most effectively? There are three requisites to proper performance of a lacquer sealer. The first requisite is that the solvents must flash off as quickly as possible after the film has flowed out smooth so as to provide a minimum of opportunity for the sealer itself to be absorbed into the wood. The second requisite is that the viscosity of the non-volatile base of the sealer must be as high as possible so that when the solvents begin to leave, the film sets at once and is given little opportunity to be absorbed into the wood. The third requisite is that the solvents must leave the film as completely as possible prior to sanding and recoating operations.

Why High-Solids Lacquer Sealer Isn't so Desirable

These requisites are not fulfilled to the highest degree by high-solids sealers. A high-solid sealer film remains wet two or three times as long as a low-solids material. As a consequence, much of the sealer goes into the wood. In addition, the sealer quickly swells the filler if it stays wet too long. The filler never shrinks back into the pores; and a rough, uneven finish results.

The second requisite is perhaps the most important, and that is where high-solids materials fail so signally. In order to be able to spray a given sealer composition at high solids, the viscosity of the non-volatile base must be drastically reduced. This means that materials of smaller average molecular weight must be used. It is well known that impregnating resins of the type used for producing Impreg and Compreg must be of low average molecular weight; that is, low viscosity, in order to penetrate.

Likewise, the penetrating sealers used in finishing aircraft plywood must be of low viscosity. The viscosity of the non-volatile base of the high-solids sealer must be lower than in the case of low-solids sealers. That is going in the direction of penetrating materials, which is the wrong direction. Finally, the solvent retention of a high-solids sealer is much greater than that of a lower-solids material. The result is that on a fixed drying schedule, sanding properties are poor, and the solvents in the final coat are much more likely to penetrate into and through the sealer film. This is exactly the opposite of what is desired. *(Continued on page 86)*

WHERE LIFE AND VICTORY DEPEND ON SPEED

U. S. Navy Photograph

"GRUMMAN HELLCATS" *Use* SPEED-ALAKA*

Again ALAKA Laboratories have come through with a perfect score! Grumman wanted to obtain a finish not only conforming with the requirements of specification M-485-C† for Non-Specular Lacquer, but with a new quality added . . . smoothness for Speed.

The problem was put to ALAKA! ALAKA chemists got busy . . . lights burned a little later in ALAKA laboratories . . . and "SPEED-ALAKA" was born. Air-dried in less than 5 minutes it adds speed to production as well as an increase of speed in flight. And it of course requires no buffing.

This material may be made glossy to meet specification AN-TT-L-51.

*Pat. Pending 546756

†Superseding Specification AN-L-21.

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Recommend Lacquer Sealer of 12% to 18% Solids

In my opinion, an ideal non-volatile range for lacquer sealers is 12% to 18%. This means that higher viscosity nitrocellulose, or more of it, can be used in the formulation of the sealer than if the sealer must contain 20% or more of the solids. After all, both types have about the same solution viscosity, which must be in the range of A to C on the Gardner-Holdt scale. An incidental advantage of the lower-solids materials is that they produce best results if the solution viscosity is B or C, providing better hold-out than if the solution viscosity were A. High-solids sealers cannot be sprayed at such heavy viscosities and still secure proper flow. B represents the heaviest practical limit.

Also, a film of low-solids sealer increases in viscosity much more rapidly when a given percent of the solvents leave, than is the case with a high-solids material. This aids in preventing penetration. The solvents flash off much more quickly and completely in a low-solids sealer, all of which tend to prevent peneration.

Not Film Thickness, But Perfect Sealing Desired

Popular opinion to the contrary, film thickness has little to do with the efficiency of a sealer. Any gains that would seem possible are purely theoretical, and are not reflected in practice. A sealer provides good building properties, not by film thickness, but by perfect sealing.

What I have said in reference to this can readily be demonstrated by anyone who takes the trouble to experiment and find out. A film of 15% solids sealer, formulated to spray at that non-volatile content, and having a viscosity of B or C, will hold out final coats better over a porous surface than will a film of 20% solids applied at A viscosity. Those who are skeptical can readily prove it to their own satisfaction. This is predicated, of course, on the sealers being formulated from the same base materials.

The clinching argument in the case is the experience of furniture manufacturers over many years. Most commercial materials are designed for application within the range suggested here. None of the things I have just stated apply to lacquer sealers applied by the hot-spraying technique. Hot-spray materials may be applied at much heavier viscosities than materials designed for spraying at ordinary room temperatures.

Reconversion Today and Tomorrow

YOU'VE heard of it often? Well, what you heard is only the beginning! We must hear it, and think it, and live it for many months. From where the paint man sits it looks like this:

Much of our reconversion will be unconversion or reversion. We must revert to many of our prewar practices and policies. Not the least of these will be reverting to the sad realization that we paint manufacturers must again sell paint, not simply take orders. There will be a reconversion in the attitude of our customers. No more will they accept explanations for poor service, non-uniformity, or the many things they overlooked during the war period. Most of the explanations were honest and logical and true, but merely by mak-

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no oxygen mask needed at extreme heights . . .

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AMONG the many recent advances in aircraft construction is the pressurized cabin. This enables crewmen to work without oxygen masks even at extremely high altitudes.

Pressurizing aircraft cabins involves sealing every seam, window and door against leaks. To accomplish this purpose, many miles of Pittsburgh Fabseal tape are now being used in the construction of American fighting planes.

The fabric of Fabseal tape is impregnated with sealing compound. Before impregnation this fabric is treated to make it resistant to water, gasoline, and oil—and to prevent wicking action. Fabseal remains flexible in temperatures far below zero.

Fabseal was developed by the Paint Division of the Pittsburgh Plate Glass Company, which also supplies vast quantities of aircraft finishes for all types of planes. Our long experience in this field can frequently save you time and money.

Easy to apply. Fabseal is easy to handle and can be applied to any metal and wooden section of a plane. It comes in rolls with an inter-leaf separating the fabric layers. After application, the inter-leaf is removed exposing the tape's upper surface, preparing it to receive another member for riveting.

PITTSBURGH PLATE GLASS COMPANY, Industrial Paint Division, Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Division, Detroit, Mich. The Thresher Varnish Co., Dayton, O.

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← U. S. Army Air Forces Photo

PSKIN SHOWS THE WAY

to get more than 3 times the Finishing Speed with 1/2 the Man-Hours

The step-up in high altitude bombing has sent the demand for sheepskin clothing sky high. At the plant of Winslow Bros. and Smith, the pressure was on for more processed shearlings.

Before the small sheepskins can be fabricated into flying clothes, they must be coated on one side with acrylate resin material for weather and perspiration resistance. With their former method of coating, the maximum output of *1200 a day* with an *8-man crew* wasn't enough to satisfy the Army Air Corps demand. And the call went out for a DeVilbiss spray engineer.

He showed them how they could more than triple output with half the man-hours by using a DeVilbiss Automatic Coating Machine. Now, *a 4-man crew averages 4000 coated sheepskins a day!*

An unusual wartime application? Yes, but no unusual saving in time and labor. DeVilbiss Spray Systems have achieved many startling speed-ups in the coating and painting of war materiel. To get the benefit of such important savings in your peacetime production, let us send an engineer to analyze your postwar requirements, now.

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ing them perhaps there grew subtly in our thinking the idea that such things were normal. They were not, and woe to the salesman or manufacturer who took advantage of conditions to take advantage of a customer. Remember, a customer's memory is longer than the elephant's, and much more annoying. It will be necessary again and soon to seek customers by every legitimate means, and more ingenuity than ever before will be required.

New characteristics and new products will be required from the paint manufacturer. Our world trade will increase immensely and much of the demand will be from tropical countries. We must supply finishes for such climates, to resist corrosion, to protect wood and fabric, ferrous and non-ferrous metals, to be used not only for reconstruction but new construction also.

New materials will be used for familiar articles. Recently I bought a plastic safety razor. Surely they ought to be available in all colors. They ought to be enameled. Many similar products will require finishes, and the enterprising paint manufacturer will be ready.

Many paint users' plants have been conveyorized and finishes will have to fit the production schedule. New baking methods will appear, for the oven manufacturers have not been idle. We will see electronic baking, more infra-red installations, and brand new methods of gas-oven baking.

Then too, our products will have to be conducive to electrostatic spraying, and detearing. You see there will be a lot of reconversion in the near future.

There will be keener competition in the bidding for large orders, for many small manufacturers have increased their facilities for the production of camouflage finishes, tank finishes, etc. These facilities, together with experience gained during their wartime use, will enable several manufacturers to seek business at prices they were never before prepared to quote. This will be noted in seeking municipal, state or federal business, especially.

Finally, there has been a reconversion in the minds of the buying public, which has become "plastic" conscious. It seems that the word "Plastic" is an open sesame into the pocketbooks of most paint purchasers. Undoubtedly the word will be used more and more in describing or naming finishes. Many are now on the market and selling like hot-cakes. Let us hope that reputable manufacturers will use the word honestly and that there will soon be definition by our national paint societies as to what can ethically be called a plastic finish.—H. H. MILLER.

New Paint Plant Planned by Expanding P. P. G. Co.

Announcement by the Pittsburgh Plate Glass Co. that a new paint plant will be erected at Springdale, Penna., suburb of Pittsburgh, is coincident with a nationwide expansion of this company in improving its production facilities and adding to its equipment. Expansion has occurred in all three fields in which the company is actively engaged—chemicals, paint and glass.

The new plant will be located on a 14-acre tract recently purchased, and, according to President H. B. Higgins, construction will begin as soon as materials and equipment are available.

The plant will service the company's numerous outlets in the Tri-State area which heretofore were supplied through the Newark and Milwaukee paint plants. With its completion, deliveries in the district will be speeded up from a day to a week or more, an important factor to dealers in the Pennsylvania-Ohio-West Virginia area. The company has other paint factories located at Dayton, Detroit, Portland, Los Angeles, and Houston.

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Lacquers

For application to all surfaces —metal, wood, plastics, composition.

Synthetics

Walker Laboratories are also versatile in formulating special finishes when needed.

Wrinkles

"Call on Walker"

H. V. WALKER CO.

Elizabeth, New Jersey

MODERN PRODUCTION FINISHES

Questions and Answers

How to Paint Raised Letters and Designs

We have been trying for some time to devise a practical method for applying paint or enamel to the raised letters on our bottle decappers. Can you tell us how this is done? We think that the lettering must be done by some sort of a stencil, either a flexible stencil made of metal cloths or silk fabric.

With your vast and extensive experience, applying to ideas of this kind, we trust you can tell us just what method you consider the best to paint lettering of this kind in an economical manner.—B. B. Co.

Raised letters are usually painted with a small hand roller which is arranged to carry a thin film of quick-setting ink, dye or paint of just the right consistency. In fact a "roller paste" paint is prepared and furnished by some paint makers for this purpose. It is a soft semi-paste semi-liquid material just right for application by a rubber roller. The surface of the roller that carries the coloring material must be reasonably firm and perfectly smooth so it will not press paint down into the inner loops of such letters as A, B, O, etc. Also, the color must be applied in such a way that no excess material will be present to possibly fill or partly fill inside and between certain letters.

How to paint the raised letters of these bottle decappers in a sharply defined contrasting color.

The best equipment I have seen for painting raised letters (and raised panels around recessed letters) is in daily service in a large plant that makes automotive batteries. This concern turns out well over a million batteries a year, so naturally it has something that is practical and economical.

At the end of the conveyorized painting-drying line you see the equipment that girl operators use to paint the raised letters quickly, easily and accurately. This equipment includes several paint palettes and paint rollers. Each palette consists of a smooth sheet of metal with a handle that holds a supply of paint.

The palettes are custom made but the roller applicators are regular inking or paint-spreading rollers. The rubber rollers of these

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YOUR PROBLEM

may be in

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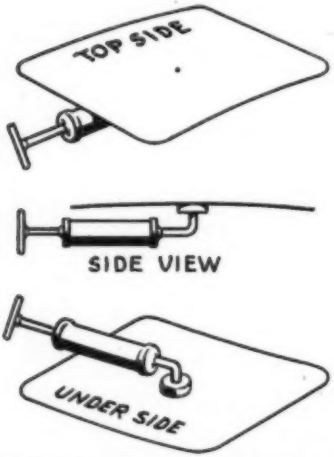
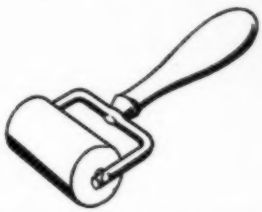
applicators are 1-in. to 1½-in. in diameter and 1¼ to 2 or 3-in. in length.

Three views of a typical paint palette are shown in sketches with this article. To keep it light, each palette is made of a sheet of aluminum thick enough to remain stiff. It is about 8½x12-in. in size. The handle for the palette is a regular small-size grease gun. It is attached to the under side of the palette, being held firmly by an L-fitting which threads into a disc riveted to the underside of the palette. The disc is about the diameter of a silver dollar and probably twice as thick. A small hole, 1/16 to ⅛-in., in the center of the palette allows paint from the gun to be forced up and onto the face of the palette.

The operator, after forcing out



These different views show how an ordinary small grease gun is fastened to the underside of a paint palette which has a small hole in its center. The grease gun serves as 1) a palette handle, 2) paint container, and 3) means of forcing paint onto palette.



Typical hand inking roller serves as paint applicator which is used to spread color over raised letters or panels of recessed letters.

a little paint by turning the handle of the grease gun, uses the roller to spread the paint in a thin film over the middle of the palette. Then the operator rolls the paint-covered roller over the raised letters and figures to be painted—or over a flat area that has recessed letters and figures. It works perfectly. At the end of any work period, the palettes and rollers are cleaned with naphtha.

In painting the raised and recessed letters on batteries, no masks or shields are needed and there is seldom any need to wipe off paint from areas adjoining those being painted. However, in your metal decappers, especially the one bearing the name Coca-Cola, the letters are raised only slightly above the adjoining surfaces. It is likely that in rolling paint onto these letters the operator could hardly avoid rolling some paint onto the areas just outside the letters.

To confine the paint to the raised letters only, it is suggested that you have one or more sheet metal shields or masks made so that a cut-out fits around the outer contour of the lettering. It doesn't need to fit the exact contour of the letters but it should fit up rather closely. This cut-out shield

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THESE lacquer and synthetic enamels contain bronze powder and dry with a lustrous metallic effect. They are supplied in twenty-eight standard colors. Metalustre enamels are tough, durable, and perspiration-resistant. They have good adhesion and cover well in one spray coat. They may be used as one coat finishes on metal or over lacquer or synthetic undercoats as well as wrinkle enamels. Write for full information and also ask for our booklet, "Information on U. S. Government Finishes," containing up-to-the-minute lists of specifications and the M & W finishes which meet them.

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can be mounted conveniently on a work table in such a way that the operator can press the decapper against it before applying paint to the raised letters. Then the paint roller will contact only the raised letters that protrude through the cut-out opening of the shield. Of course, the face of the shield will receive paint too, but this can be wiped off occasionally so as to keep the shield in condition to protect those areas of the decappers that must not be painted.—ED.

Smoothing Masonite Edges

Our problem now is how to burnish and seal tempered Masonite board that has been rounded off at the edges. We have a porous and fuzzy condition that would likely be eliminated by sealing through burnishing. Any information on this matter will be greatly appreciated.—T. N. Co.

We question the advisability or practicability of attempting to burnish these edges with a burnishing tool. We do not believe that burnishing would result in holding down the fuzz permanently.

Our suggestion is to apply a coating of thin clear penetrating sealer to these edges. Let this dry (air dry or force dry) and then knock off the projecting nibs, fuzz, etc., by sanding the treated edges (rubbing them with abrasive paper or abrasive cloth). This sanding could be done by hand or by power machine. Power machines include belt sanders (fixed and portable), reciprocating portable sanders, and small flexible drums mounted on either a fixed spindle or portable machine, etc.

Perhaps some readers have a suggestion or recommendation in reference to the smoothing of these rounded edges on Masonite. If so, we will appreciate getting additional information on this.—ED.

Finishing Lime-Oak Furniture

THE TYPE of veneers used plays an important part in producing a satisfactory lime-oak finish on wood furniture. Straight-grained white oak veneers are much the best. However, they are not easily obtained at present, so a number of manufacturers are using red oak. By using an enamel equalizer they are producing a satisfactory limed-oak finish.

The veneers should be carefully selected and closely matched as to color. Blue or black streaks, knots, etc., should be cut out of the veneers before they are glued up in the machine room. However, where the selling price of the furniture prohibits the use of No. 1 veneers, it is then up to the foreman finisher to get the best finish possible on the veneers used.

First and perhaps most important, when beginning to produce a lime oak finish, is to be sure that the surfaces of the furniture are well sanded before the work enters the finishing room. Few finishers washcoat for this type of finish before filling, so the wood must be very smooth or the surplus filler won't wipe off clean.

Then examine unfinished pieces for blue mineral streaks and blue spots caused from cutting the veneers from the log. In most cases, these spots can be removed by bleaching. Use a commercial bleaching material or, in an emer-

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

ALWAYS READY FOR TOUGH WORK...

KELLOGG-CROWN "25"

Here's a spray gun that feels right—and *is* right; and it's built to take it. Easily-accessible, easily-operated precision controls—non-tiring, free-swinging balance. For better, more profitable finishing, look into the Kellogg-Crown line of paint spray equipment. For *the most air per dollar*, your choice will swing to a Kellogg-American air compressor—built for hard work, long life, low operating cost.

Kellogg-American

AMERICAN Brake Shoe COMPANY

Kellogg Division, Rochester 9, New York

AIR COMPRESSORS • PAINT SPRAY EQUIPMENT • CAR LIFTS • CAR WASHERS

gency, use a solution made up in the proportion of 1-oz. of oxalic acid mixed into one-pint of water; and apply to the discolored spots. Allow the bleached areas to dry about three hours; then sand them smooth. If these spots can't be removed by bleaching then the only other thing to do is to tint them with an almost transparent light colored lacquer enamel. This transparent tinting lacquer can be prepared by mixing the material in the following proportion:

Lacquer enamel (oz.)	2
14%-Solids lacquer sealer	6
Lacquer thinner	18

Apply this tinting lacquer to the spots with a small spray gun. Allow time for it to dry; then sand lightly before filling.

It is also necessary to use a tinting enamel similar to what has just been described, to uniform veneers that enter into the manufacture of cheaper grades of furniture, as oak veneers of this grade vary greatly in color. Just spray a wet coat all over the piece to be finished; then allow it to dry; then sand and fill.

Another thing to remember: Be sure that all finger marks or dirt are removed before filling, as they will show through the final finish.

To take care of sap streaks, a very light-tinted sap stain can be used. After the stained surfaces are dry, sand these treated streaks to blend them in with the other surfaces around them.

Now your prepared surfaces are ready to fill. Several different tints of lime oak filler are used. They vary from white to eggshell white. I prefer a light eggshell white. Filler should be mixed in the proportion of 6½-lbs. (of filler per gallon of solvent) for spraying, or 8-lbs. for brushing. The filler should be well padded into the pores of the wood, as most oak veneers are difficult to fill. The surplus filler is wiped off clean.

After the filler is dry, spray on a coat of lacquer sealer. Then use either gloss or flat varnish or lacquer as a final coat. The final coat should be of a clear (water white if possible) material. After the final finish is dry, the surfaces are rubbed with pumice and oil and waxed if a dull finish is desired.

On "Borax" and "Borax Modern," where a high polished finish is desired, the surfaces are rubbed with pumice and oil; then follows a rubbing with polishing powders and oil; finally the surfaces are polished with an abrasive liquid polish.—H. W. CHESTER.

J. O. Ross Engineering Opens Branch in Boston

The J. O. Ross Engineering Corp., New York 17, N. Y., announces the opening of a new branch office at 79 Milk St., Boston 9, Mass. The Boston office is in charge of Mr. Frank W. Partsch, Vice President.

Metal Finishing Equipment Concern Expands

George L. Nankervis Co., 5408 Commonwealth Ave., Detroit, Mich., announces the addition of three important men to its organization.

H. M. Cherry has been appointed General Manager. Mr. Cherry, known throughout the metal finishing trade as one of the foremost authorities on equipment and practice in the industry, has a background of over 23 years practical experience in all phases of the work.

Donald C. Hulse, appointed as Designing Engineer, has a fine reputation as a specialist in the design of anodizing and plating racks and fixtures. He is responsible for the design of many of the finest plant layouts in the Detroit area.

George R. Young, appointed Service Engineer, has had a broad experience in the design and fabrication of heating, ventilating and conveyor systems for metal finishing plants.

SUBSTANTIAL REDUCTION

in finishing costs with HOT LACQUER

THE HOT LACQUER process offers you big savings in time, labor, and materials. When sprayed hot, lacquer has a higher solids content . . . requires only half the number of coats. Less volatiles are required. These economies make Hot Lacquer the logical process for finishing numerous industrial products. Ask your supplier.

Nitrocellulose Lacquer—the postwar finish on today's war-products.

CSC makes no lacquers or thinners but supplies solvents and plasticizers to manufacturers of protective coatings.

CSC

COMMERCIAL SOLVENTS

Corporation

17 East 42nd Street, New York 17, N. Y.

Acid-Resistant Coating Known as "Phen-Cote"

"Phen-Cote" is one of a new series of developments in the field of organic surface finishes. It is a true thermo-setting plastic that is completely converted by heat, which reacts to an infusible, insoluble hard surface. This is a proved result of research in the field of plastics. Phen-Cote is a pure resin that is easily converted, in a short baking cycle, to an extremely hard but flexible film that is highly resistant to acids, alkalies, oils, greases, alcohol, solvents and most chemicals.

A product of the Watson-Standard Co., 225 Galveston Ave., Pittsburgh, Penna., Phen-Cote is adapted to spraying by hand or automatic, or can be dipped or roller-coated, and forms a continuous, homogeneous film which is extremely corrosion resistant.

This finish contains no oil modifier nor plasticizers which have a tendency to dilute or weaken the film in its resistance, therefore, it produces a hard, indestructible, insoluble, flexible film. Phen-Cote base has many applications and adaptations to specialized job conditions, and is readily adapted to producing linings for sanitary food cans to contain fish, meats and other edible products requiring a lining that has excellent oil resistance. As an exterior protective coating, this product will fabricate, process, and produce superior corrosion resistance on black iron plate, electrolytic and hot-dipped tin plate.

Portable Parts Cleaner

A new parts cleaning system, combining the utility of two washers into one self-contained portable unit, is announced by the Gray-Mills Co., 1948 Ridge Ave., Evanston, Ill. The system includes a portable cleaner with a unique "swisher" feature and cold-cleaning Flo-Bac solvent.

Large parts, requiring individual handling, are cleaned of grease and grime by a strong stream of solvent pumped from the tank below. The smaller parts may be washed in quantity by merely pouring them into a basket and immersing in solvent. A two-section shelf may be removed, giving access to the dipping tank below. The dipping basket rests on a simple, hand-operated "swisher" device, which speeds the cleaning operation by providing a convenient method for agitating fluid. *(Continued on page 108)*

Materials Supplies Equipment

A cold cleaning-solvent is used.

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

Such parts as castings, gears, carburetors, air cleaners, machine products and tools may be washed quickly in this portable cleaner. The cleaning unit is fully portable, equipped with a built-in gear-type pump. A safety-cover eliminates fire hazards. The Flo-Bac solvent is used cold, and degreases parts without pitting and corroding. It is used over and over again and continually filtered.

"Durelasto"—Zapon's New Wood Finish

A new industrial wood finish, achieved by researchers of the Zapon Division of Atlas Powder Co., Stamford, Conn., is announced by the company. The new finish is designed to meet the ever-increasing demand for durability and eye-appeal of wood products and will be available to the trade under the name of "Durelasto". It can be applied to household and office furniture and many similar wood products in constant use, and affords boundless protection against wear.

The product, in liquid plastic form, may be reduced to approximately 35% solids for spray or roller coat application. It will be obtainable in clear, gloss or flat, white and solid colors. It dries reasonably fast under infrared lamps or in drykilns and does not require pressure for final cure. It is resistant to fruit acids, beverage alcohol, abrasion, soaps, etc., and withstands normal heat such as hot dishes.

"Durelasto" is one of many new finishes developed by Atlas Powder Company's Zapon Division, as a result of experience gained in war work and research to meet postwar demands.

Rotary Wire Brushes

Do you have intricate metal cleaning or smoothing jobs that might be handled better with small rotary wire brushes ranging in size and shape from a tiny pencil to a silver dollar and larger?

Removing small burrs, welding scale, oxidation, sand, grease, etc., from small castings and machined parts offers little of the romatic urge which accompanies the operation on a larger scale—and yet improper or incomplete cleaning and finishing of the less pretentious and less obvious parts may well cancel the value of all finishing.

Osborn Mfg. Co., 5401 Hamilton Ave., Cleveland, Ohio, offers a wide range of wire brushes especially suited to millions of more or less intricate metal cleaning and smoothing jobs which must be performed properly before further processing takes place.

Lionoil Stops Rust

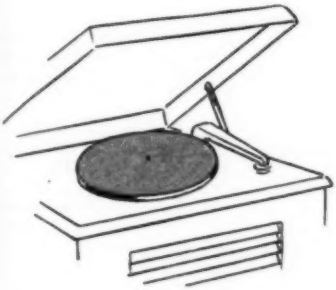
A protective coating to use on new iron castings and other new iron and steel surfaces to prevent rust before it starts, it called "Lionoil." Lionoil seals the surfaces of castings against cutting oil and compounds; provides easily cleaned surfaces for paint or enamel. You can finish right over it.

Lionoil is readily adapted to any method of application — brush, dip, spray, tumble, roller coat, centrifugal or flow coat. It air dries in 8 to 10 hours, bakes in one hour at 250°F. or 30 minutes at 325°F. This material is a product of Berry Bros., Inc., 211 Leib Ave., Detroit 7, Mich.

"Zinctone" Brightens, Protects Zinc Alloy Castings

"Zinctone," a quick chemical process for brightening and improving the corrosion resistance of zinc-alloy die castings is a new development announced by Turco Products, Inc., of Los Angeles and Chicago. The Zinctone process seals the outer "skin" of the casting, helping to protect it from mechanical penetration and corrosive attack. At the same time Zinctone produces a smooth bright surface which compares favorably with the finish produced by mechanical polishing or buffing. The Zinctone process does not change the color of the metal, but brings out a lustrous silvery bloom which greatly enhances

COAT TURNTABLES



With

Cellusuede FLOCK

For record protection, elimination of slipping, and a rich velvety finish at low cost, for ease and economy in application—you'll find Cellusuede Flock the ideal material for coating the turntables on phonographs. And this is only one of the thousand ways to use this versatile material! Cellusuede can be applied to almost any surface by sifting or spraying, and there is a wide selection of brilliant, eye-catching colors from which to choose. Rayon or Cotton Flock in assorted colors is available for immediate shipment.

Write for Color Card, Samples and Prices

CP *Cellusuede Products, Inc.*
ROCKFORD, ILLINOIS

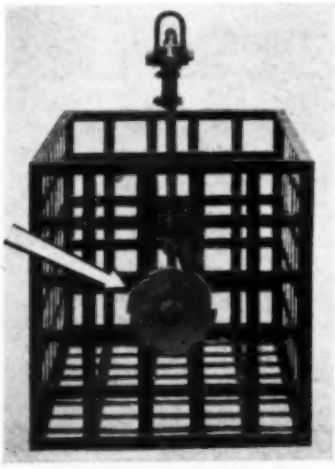
the appearance of the casting.

The procedure makes use of simple, easily available immersion equipment; may be handled entirely by unskilled personnel.

Ratchet for Tilting Containers

In pickling pots, pans, vessels, and many types of metal parts, it is necessary to drain the pickling acids from within the containers easily and quickly. Openings and lattice work of the baskets should be large enough to permit rapid flow of the acids but, in addition, a ratchet that permits the basket to be tipped in a variety of positions gives aid in drainage.

The Youngstown Welding and Engineering Co. developed, for some of its baskets, a new simplified ratchet which holds the basket in six different positions. It is positive and strong enough to be applied to practically any size equipment. The ratchet is pictured here on a Weldco Crate 60-in. long; 32-in. wide; 33-in. deep; weighs 304-lbs.; and carries a 3000-lb. load.



Notice the ratchet which controls the tilt of crate, basket or container.

New Titrating Outfit

The Aero-Titrater, a product of Chief Chemical Corp., 1123 Broadway, New York 10, N. Y., furnishes the plant operator and laboratory technician with a rapid, precise method for the determination of hardness, calcium and magnesium in waters, both industrial and potable. It is also widely applicable to water problems in the process industries. (A titrating outfit is generally used to test the condition of water used in water-wash spray booths.—ED.)

Monorail-Spray Metal Washer

A new and improved design in metal-washing equipment, the Monorail-Spray Washer, has been developed by the Metal Washing Machine Division of American Foundry Equipment Co., 555 Byrkit St., Mishawaka, Ind. The unit is designed to handle metal parts which must be rotated while they are passing through the cleaning chamber for highest cleaning efficiency. Typical work of this type includes intricate circular parts or those with many ports, crevices or openings.

A monorail conveyor is provided to carry the work through the path of well-positioned power sprays. Parts are suspended from hooks and can be rotated while passing through the cleaning stages.

Dry Chemical Fire Extinguisher

Outstanding advancement in extinguishing industrial fires is the new "All-Out" fire extinguisher manufactured by the National Powder Extinguisher Corp., 50 Rockefeller Plaza, New York, N. Y. Designed especially to extinguish both flammable liquids and fires of electrical origin, the chemical ejects a stream of "All-Out" dry chemical which, when activated by heat, forms a dense, fire-smothering cloud over a flaming area up to 18-ft. The insulating qualities of the cloud help guard against re-flash, and cre-

Since 1875

O'BRIEN

INDUSTRIAL FINISHES

Not the Most . . Just the Best

PERPETUAL CARE

PERPETUAL CARE is seldom associated with the protective coatings industry but it rightfully deserves an important place in that business.

There is a great deal more to the successful manufacture of paint-like products than just mixing a little bit of this with a whole lot of that. Actually, the protective coatings business is just as much a chemical industry as is any other highly technicalized industry which depends upon the reaction products of chemicals.

The chemical industry comes under the classification of things that work while you sleep. Many reactions involving large volume require more than an ordinary eight-hour shift for completion. A chemical reaction is not static. Instead, it progresses to a certain point of equilibrium, definitely set by environment of temperature, pressure and time.

Perpetual care is the price demanded for success. O'Brien's practice perpetual care right down the line. It infiltrates every O'Brien department, regardless of whether the particular department is concerned with chemical control or keeping accurate records. Perpetual care is a "must" in any well-conducted chemical industry such as the O'Brien Varnish Company.

Among the items O'Brien's supply to production line industries is O'Brien's Industrial Black Lacquer No. L-1329, known nationally for its ability to speed a slow finishing schedule. The bottleneck of finishing and drying which frequently occurs between fabrication and shipping is not necessary if the product can go out in a black semi-lustre finish. O'Brien's No. L-1329 Industrial Black Lacquer is usually supplied ready for the spray gun, to be applied on bare metal immediately after removal of shop greases and oils. The single coat finish has extremely high coverage and its cost per square foot is very economical.

This Black Lacquer occupies the same position in the high speed metal finishing field that lacquer holds in the furniture field.

O'BRIEN VARNISH CO.
South Bend 21, Ind.

ate a heat-deflecting screen between the operator and flame, permitting close range attack with greater safety and no heat discomfort. The chemical, a non-conductor of electricity, is harmless to humans and delicate, mechanized parts of motors or machinery.

Weighing only 37-lbs. fully charged, the "All-Out" extinguisher is easily maneuvered by men or women workers. It is fast in action and can be quickly recharged at the scene of a fire without special recharging equipment. According to Charles A. Koons, president of the corporation, both the extinguisher and its extinguishing agent have been tested and approved by the Associated Factory Mutual Laboratories on burning oils, alcohol and gasoline fires.

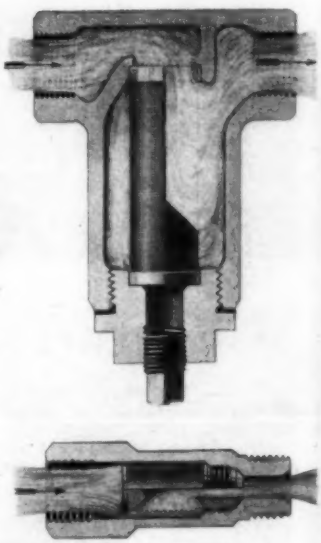
Workers Hand Cream

Cadet Creme Co., 10 Clarence St., Worcester 5, Mass., has developed a soft paste for rubbing on workers' hands, to protect the hands and to enable workers to easily and safely wash off any stain, paint, lacquer, adhesive, chemical, oil or grease with which they may be working. The paste is rubbed over and into the hands, wrists and parts of the arms which may be exposed to anything that might discolor or irritate them. It seems to disappear, but it does provide a very thin invisible protective coating which can be easily and quickly washed off later.

Spraying Systems Strainers

Improvements in both design and construction are featured in two types of new liquid strainers developed by Spraying Systems Co., 4017 W. Lake St., Chicago 24, Ill.

For installations involving the use of several nozzles on a single feed line, the type TW offers unique features. Design of the strainer results in an extremely large open screen area in relation to the pipe area of the line, so that it may easily handle the full



Above: Type TW liquid strainer.
Below: Type Q line strainer.

capacity of a line supplying several nozzles. Consequently, the TW permits freer flow of the liquid and does not require cleaning as often as ordinary strainers. A blowout plug makes the T. W. easy to flush and clean without removal from the line.

The standard type TW is supplied with cast-iron body and brass-wire screen; all brass or all stainless steel construction is also available.

A choice of screen mesh is offered so that performance of the strainer may be directly related to size of nozzle orifice.

In the type Q line strainer, a highly effective strainer for single nozzle installation is offered. Maximum capacity of this strainer is one gallon per minute of water, brine, oil and liquids of similar viscosity.

The screen in this strainer is removable to facilitate cleaning.

You've seen—and forgotten—many pictures of girls, but perhaps you'll remember this one because of the unusual pose and lighting.

A customer sees a great many products in your field—have you done anything to present your product so attractively that he will notice and remember it?

Having a finish created particularly for your product is an excellent means of insuring its attention-getting qualities. A good finish will please the eye and highlight the desirable features of your product. Our Creative Studio is ready to serve.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

Pentone for Safe Cleaning

According to the manufacturer, "Pentone," a degreasing and cleaning medium, contains nothing that is toxic, inflammable or injurious to the skin. It is made of non-critical materials. Many interesting claims are made for this product which is available in different formulas. It is offered by Pentone Co., Tenafly, N. J.

Ballou Imitation Chrome Finish

An imitation chrome finish in paste form, which is said to produce a beautiful imitation of a real plated finish, has been placed on the market by Edward C. Ballou Co., 6 Varick St., New York 13, N. Y. The material is available in paste form and can be used with quick-bake synthetics or varnish type vehicles. The material can also be mixed with lacquers.

Insulating Resins for Electric Equipment

A new class of organo-silicon insulating materials for use on stationary and rotating parts of electrical equipment, is announced by Dow Corning Corp., Midland, Mich. After application, the thermosetting dielectric coating or impregnant requires baking at a high temperature. Several remarkable merits are claimed for these "silicones."

Flexible Exhaust Duct

To meet war-time needs, a new type of portable air duct, flexible but not collapsible, has been developed by Du Pont engineers for either blower or exhaust systems.

It is an improved "Ventube" flexible ventilating duct designed primarily for auxiliary ventilation in ship construction, cleaning or repairing ships. It also is suitable for other industrial uses such as building and maintenance of vats, tanks, tank cars, boilers or for rapidly changing air in work-rooms or drying rooms.

Non-collapsible "Ventube" is a sleeve or tube of standard "Ventube" impregnated cloth, either regular or fire resistant, with a tempered steel helical spring inside. The maximum airflow opening is maintained, regardless of whether the duct is bent sharply or the system is blowing or sucking air. When bent to an angle of 180 degrees it will exhaust eight times more air than the old style tubing.

If the covering of the new Ventube is burned by a welding torch or cut through it can be patched like an automobile inner tube.

Ventube is made by impregnating and coating especially selected fabrics with a high grade abrasion-resistant compound that is water resistant and impermeable to air. The fabric also is highly resistant to heat, moisture, mildew and dry rot.

This new duct weighs only half as much as an equivalent length and diameter of the earlier type non-collapsible "Ventube." It is a product of the Du Pont Co., Wilmington, Dela.

Self-Bonding Floor Feels Like Rubber

A flooring material is available that is self bonding. It can be laid over old concrete, cement, wood, or composition without adhesives or separate bonding agents. This material, known as "Stonoleum," feels like rubber and wears like stone. A unique colloidal composition gives it greater resistance, not only to direct impact and load, but also to continuous vibration, abrasion, and other effects of traffic.

Laid Saturday, Stonoleum floors are ready to use on Monday. No chipping or chopping is needed—no skilled labor. Any plant handy man can apply it with ordinary leveling tools. Stonoleum also is an excellent patch material, especially because it bonds without adhesives or bonding agents. It is a product of Continental Asbestos Refining Corp., 1 Madison Ave., New York, N. Y.

BAKING ENAMELS
LACQUERS
ENAMELS
SEALERS
PRIMERS

NEW PERIOD
WOOD and METAL
FINISHES

SYNTHETICS
VARNISHES
SHELLAC
FILLERS
STAINS
SUPPLIES

A Combination Hard to Beat

NO. 100 NEW-LAC
SUPERIOR TO SHELLAC

Thins only with denatured alcohol . . . dries quickly to a pale, tough film. Seals completely and sands easily. Costs much less than shellac.

NO. 460 SYNTHETIC
GLOSS RUBBING VARNISH

Has unusual build . . . dries quickly to a hard, marproof durable finish . . . Rubs easily overnight.

Order a 5 gallon can of No. 100 New-Lac or No. 460 Synthetic Gloss Rubbing Varnish at drum prices for a production test.

NEW PERIOD PRODUCTION FINISHES

NEW YORK WOODFINISHERS SUPPLY CO., INC.
109 IMLAY STREET BROOKLYN, N. Y.
Established 1917

Booklets Catalogs Circulars

New Infra-Red Bulletin

A new bulletin of information about the infra-red process of heating with infra-red lamps has been compiled and published by Wabash Appliance Corp., 333 Carroll St., Brooklyn 31, N. Y. Several different types of lamps are illustrated; also pictures of infra-red drying and heating installations.

Acid-Resistant Tank Linings

If you are interested in having your metal, wood or concrete process tanks lined with "Koroseal" to make them resistant to attack by acid solutions, etc., send for the new bulletin "Koroseal Tank Linings" by the Udylite Corp., 1651 E. Grand Blvd., Detroit 11, Mich.

Protective Skin Cream

A new catalog section on its Clad protective skin creams, for use either for wet or dry work, has just been issued by The B. F. Goodrich Co., Akron, Ohio, and is now available upon request. The catalog section describes conditions under which either type should be used, describes its benefits and ease of removal with water, or soap and water.

Flat Spray Nozzles

Chain Belt Co., Milwaukee, Wisc., has just produced a new folder descriptive of Rex flat spray nozzles. These nozzles are in service in practically all industries where water is used in cleaning, cooling and washing operations. They are made in a variety of sizes and from a variety of materials. The folder, besides illustrating and describing the nozzle uses, gives tabular information concerning their discharge in gallons per minute; their dimensions; a list of materials, sizes and prices.

Hot Wax Dipping Tanks

Electrically-heated portable dipping and melting tanks for either dipping or melting wax safely and quickly, are illustrated and described in a bulletin published by Aeroil Burner Co., Inc., 5701 Park Ave., West New York, New Jersey.

Germicidal Floor Finish

An illustrated descriptive bulletin about "Steri-Lac" (a lacquer made of wax with germicide added) can be obtained by writing Continental Car-Na-Var Corp., Brazil, Ind.

Amercoat Plastic Coating Material

A colorful illustrated booklet published by the Amercoat Division of American Pipe and Construction Co., P.O. Box 3428, Terminal Annex, Los Angeles 54, Calif., explains what Amercoat is, what it is used for, and its various merits when employed as a protective coating film on metal, wood, concrete, etc.

According to the manufacturer, the film produced by this coating material is tough, durable, dielectric, flexible, insoluble in alcohol, impervious to oils, fats and waxes; and unaffected by alkalies and salts.

What's Ahead in Product Finishes?

Free—a beautifully illustrated booklet describing the many uses of Johnson's Wax-O-Namel. Here is something right up to the minute—something for present and future reference in connection with your postwar plans and activities. Write S. C. Johnson & Son, Inc., Products Finishes Dept. (IF 104) Racine, Wisc.

Book on Pedigree Products

Many things you'll want to know and see in connection with practical information about protective coatings—this and more are included in the new attractive 36-page book now entitled "Pedigree Products," which is available for free distribution by The P. D. George Co., St. Louis, Mo. The book is printed on high quality paper, has added color decoration and is bound in a textured maroon-colored binding. Pages are 8¼x10¾-in.

ARTISAN *Fine Finishes*

It's the finish that sells fine furniture. For, only in the selection of the proper finish can the beauty of the wood, the skill of the designer and the craftsmanship of the maker be shown to full advantage. Artisan Fine Finishes can give your products that eye appeal and unmistakable quality appearance that mean greater sales and profits. American Marietta's trained technicians will gladly work with you to produce the results you want.

AMERICAN-MARIETTA COMPANY

Marietta CHICAGO High Point

Artisan Fine Finishes—An American-Marietta Quality Product

Industrial FINISHING

Distributed monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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(No subscription solicitors are employed)

Editorial

Users Liable Too, For Critical Materials

Users of considerable quantities of finishing materials, solvents, thiners, etc., are urged to obtain a copy of W. P. B. Conservation Order M-382, dated September 6, 1944, and amended to become effective October 6, 1944. Protective coatings and critical coatings are defined, and critical raw materials are listed.

It is important to become familiar with the entire contents of this order, especially the paragraphs headed: Restrictions on purchasers from producers and distributors; *End-use certificate; Consumer's use restricted; Distributor's deliveries restricted; Distributor's notification to purchaser; Exceptions; Violations.*

Users are liable if they violate (knowingly or unknowingly) provisions of this order. Copies of Order M-382 can be obtained perhaps from your supplier of materials; certainly from the War Production Board, Chemicals Bureau, Washington 25, D. C.

Style Colors For Spring of 1945

Liberation Colors, glowing hues inspired by the gallant exploits of our victorious Allied forces, are highlighted in the Confidential Advance Information for the Spring of 1945, which the Textile Color Card Association has released.

In commenting upon this valiant theme, the managing director of the Association said, "Color today has a new symbol—the symbol of Liberation—and, imbued with this new spirit of freedom, it is destined to become a greater source of inspiration than ever for the fashion arts. Normandy Rose, Brittany Violet, Roman Gold, Tunis Lime, Tuscan Lilac, Capri Turquoise, Sorento Orange, and Algerian Green pay homage to the brilliant Allied victories of the present and future. Arc de Triomphe Blue symbolizes Liberation not only for France and her great creative genius, but for all op-

"As if we didn't already have more business than we can handle . . . you guys had to insist on changing to S-I-P WEAR MASTER Finishes!"

FINISHES that SELL...

First appearances are SELLING appearances . . . *your customers judge your product by its finish.*

Increase customer acceptance at no added cost by letting S-I-P specialists develop for you the special WEAR MASTER *selling* finishes you need.

Send for complete details without obligation.

STANDARD INDUSTRIAL PRODUCTS, INC. EVANSVILLE 4, INDIANA

Wear Master

IMPORTANT

S-I-P production-tested Non-Priority Enamels, Lacquers and Sealers are winning high praise from users! Try them!

pressed countries. So, too, is Marseillaise Red symoblic, not only of the thrilling national hymn of France, but it typifies as well the song of Victory for all free peoples."

Oven-Bake Finishes and Baking Equipment

★ Regarding the subject, "Post War Finishes," I feel prompted to offer the following personal opinions, based on present limitations and regulations in raw material purchasing (I do the buying for our company), coupled with the trend of demand by our varied trade of industrial finishing materials, and what those concerns are likely to do in the postwar period.

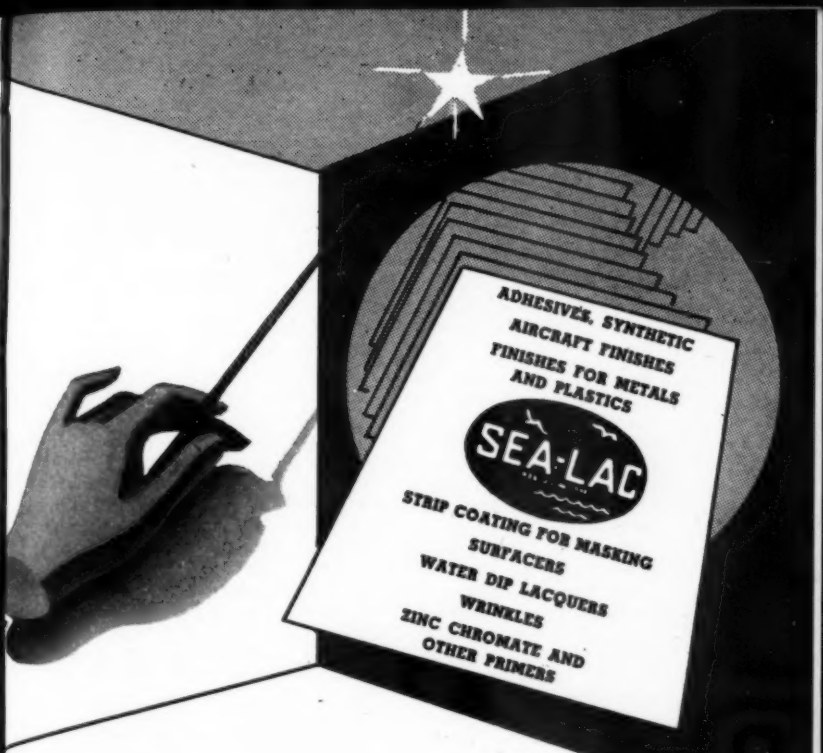
First, for the duration of the war and possibly for some time immediately following cessation of war, steel and many other metals essential for the fabrication of heating equipment and its accessories will continue to be difficult to procure. Included as accessories must be considered infra-red and other special heating lamps; also gold-plated reflectors, where that type is desirable; in fact, everything electrical (including copper wire) for installing either electric bake ovens or infra-red tunnel systems. Therefore, the onrush of postwar production will be handled largely with such plant facilities as are already existent with each manufacturer. So many industrial plants have augmented their manufacturing equipment for defense work that, to not fully utilize same as is, or to adapt it to peace-time production, would not be economical even though some of the plant expansion may have been partially subsidized by our Government.

Normal atmospheric air-drying has been more and more supplanted during the past several years by forced-drying and by actual baking. "Speed and more speed" was the trend in all phases of modern activities before the war, and now it is increasingly required because of the war, so unquestionably future finish coatings, other than the strictly baking type, will be confined mainly to lacquers of nitrocellulose or similar character.

Snythetic-resin finishes of the so-termed high-bake type (at present popularly the urea-formaldehyde and the melamine synthetic resins) are adapted to both ordinary oven baking and the infra-red baking systems. Infra-red systems are most gainfully resorted to in large plants where assembling and finishing follow on the conveyor production lines. Where such facilities are already installed, undoubtedly they will be continued in service. Where oven-baking has been existant, it is likely that most of such users will maintain the orthodox baking procedure with oleoresinous (varnish) coating materials; or, for a better tougher finish, they will utilize the high-bake synthetics which usually require only 20 to 30 minutes baking at 300°F.—S. S.

★ Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

More than 200 major raw materials and several thousand minor materials are employed in the manufacture of the various enamels, varnishes, lacquers, etc., produced in the United States and Canada.



The Finish You Need

—IN A JIFFY!

We need no magic wand to produce the exact finish you need—quickly. We rely on far more trustworthy resources . . . files full of formulas of every kind of finish. Many of these we have developed over the years. Others we are bringing to light every day in our laboratory; coatings for every purpose and application—wood, metal, plastic. Name your need—we'll help you satisfy it.

)URALAC CHEMICAL CORPORATION

LISTER AVENUE, NEWARK 5, N. J.

Stout Sets The Pace—We enjoyed several hours of exhilarating conversation a few weeks ago with our friend Bill Stout, the world-famous industrial designer who built the first all-metal plane, and who is a past president of the Society of Automotive Engineers. Bill was telling us that his "Scarab" car, which he conceived and manufactured eight years ago for his own pleasure, is still free from squeaks and rattles—and it has traveled over 150,000 miles!

The "Scarab," as you may know, is a rear-engine job with many revolutionary innovations. The interior is one huge room, fitted out with seats that can be pushed around like so many pieces of furniture. The auto weighs less than a Ford, it's shorter than a Chevrolet, yet it has a wheelbase longer than a Cadillac. Bill Stout's car, built in 1936, is today years ahead of the last 1942 models.

* * *

New Adhesive—"It will stick almost anything to anything." That's the terse description given by Consolidated Vultee Aircraft Corp. of "Metlbond," the company's newly-developed glue. Approved by the army for airplane manufacturing, the material is made in liquid, paste and tape forms. Curing at a temperature of 300° F. is required for several minutes after application, and at an atmospheric pressure that varies with the form.

Metlbond will attach aluminum to plexiglass. It will also bond steel—up to ¼-in. thickness—to aluminum, despite the wide difference in thermal expansion coefficients of the two metals. In addition, steel sheets can be bonded to plastic surfaces, and glass to glass. Wood, rubber, cotton, rayon and fiberglass can also be handled successfully.

* * *

Steel's Prospects — Despite all threats of competition from plastics and the light metals, says H. G. Batcheller, president of the Allegheny Ludlum Steel Corp., the postwar demand for steel—particularly alloys and specialties—will be greater than ever. War pressures caused research engineers "to cram into three years work what would have covered a dozen or more in normal times," he observed recently.

Among the developments cited by Batcheller are heat-resisting metals which have helped in the production of jet-propulsion planes; gas turbines — "the first really new kind of power plant that has been created in 50 years; and a harder tool that has increased the life of some equipment 50%."

* * *

Presenting Tamarisk—You will be hearing more in the years ahead about tamarisk, an unusual hardwood originally imported from the Mediterranean area, and now under extensive cultivation in Arizona. Somewhat on the order of white oak, it is a tough, sturdy wood, easy to handle in furniture manufacturing.

Some of the Grand Rapids shops have experimented with tamarisk

ONE MAN TASK FORCE

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TOOL CHESTS
MARINE PARTITIONS
RADIO INDUSTRY, ETC.
SKIS
INSTRUMENT BOXES

COMMANDER NORMAN M. MILLER, a North Carolinian Naval Ace, and a PH4Y Squadron Commander in the Pacific, has piled up the incredible record of sinking or damaging sixty six Japanese ships. For this amazing feat he has been decorated with two gold stars and is known throughout the Navy as a "One Man Task Force."

To Commander Miller and to thousands of other Naval airmen who are driving the Japs into the China sea a grateful nation says, "Well done and Happy Landings."

To all of us on the home front who helped to build the PB4Ys the Navy says, "Keep going, we have another war to fight in the Pacific."

Listed here are a few of the war products now being coated with our materials. Phone, wire or write and let one of our finishing experts help you "keep production rolling."

BACK THE ATTACK . . . . . BUY WAR BONDS

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875
7430 STATE ROAD PHILADELPHIA 36, PA.

This is FLOCK

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It's amazing how many ways the many types and colors of Flock can be used — and how economically!

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SOUND DEADENING — TEMPERATURE INSULATION — INTEGRAL GASKETS — SHOCK-ABSORBING SURFACE — NON-MAR SURFACE PROTECTION.

DECORATIVE

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

SUEDE LEATHER—FURNITURE UPHOLSTERY FABRICS—AIRPLANE AND AUTO UPHOLSTERY FABRICS — VELVET — VELOUR — MOHAIR.

Request Samples and Prices

RAYON PROCESSING CO. of R. I. INC. 55 TREMONT ST. CENTRAL FALLS, R. I.

on a small scale, and found it worthy of high praise. The big catch has been the fact that the wood has been growing knotty and crooked. New methods of cultivation are beginning to overcome these deficiencies, and a bright industrial future for this material is anticipated.

* * *

Glass Rates High — Now that some 800,000 people have inspected the "Kitchen of Tomorrow" on its nation-wide tour, Libbey-Owens-Ford has compiled some interesting data on America's postwar preferences. Housewives want more transparent and washable surfaces. Glass doors for ovens and refrigerators are popular, and disappearing sinks and vitrolite walls are also welcome. Sliding glass doors on kitchen cabinets proved to be a topheavy favorite.

* * *

Fireproof Paint—Our Navy, continuing its constant quest for a fireproof paint, has recently developed an improved coating with marked fire-retarding properties. This new material, formulated under the guidance of the Bureau of Ships, is reputedly based on an antimony oxide pigment.

The casein type of coating, widely employed on land for its fire-retarding qualities, is not as serviceable at sea, because of its inability to successfully resist mildew and frequent washings.

* * *

On The Alert—Every business organization, no matter how small, requires the services of at least one person with sufficient technical training to follow the developments recorded in the technical press, and interpret them for his company. That is the contention of Richard Rimbach, Pittsburgh consulting engineer, as quoted in Harry W. Alexander's interesting publication, *Post-War Headlines*.

"Such a man can be of greatest value," continues this authority, "in appraising the results and implications of such published research and its bearing on his company's interest. If a qualified man is employed, he will often accomplish considerable valuable work without a large expenditure for a laboratory."

* * *

Paint And Television—A number of observers have pointed out the coming emergence of luminous paints as a handmaiden to television. In the tens of thousands of postwar homes where darkened rooms will be used for video reception, doorknobs, electric light switches and other strategic spots will require luminous coatings for quick identification.

It is also expected that certain plastics will have luminous ingredients, and that even upholstery fabrics may employ luminous dyes for limited use in draperies and other home furnishings.

* * *

Two-In-One — In view of the steadily increasing interest in quick freezers, the "Dual Temp" refrigerator planned for peacetime production by the Admiral Corp. seems to be a happy compromise for apartment dwellers in most American cities. The upper half will be used for ordinary refrigeration, keeping food moist as well as cold. This unit will have no evaporator, nor will it require defrosting. A Sterilamp to kill food bacteria will be standard equipment.

The dry-cold section in the lower portion will serve as an individual freezer, with space for about two bushels of frozen food. And the bottom shelf, as an addi-

I. C. D. FORMULA NINE
NON-INFLAMMABLE
« *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

EASY TO APPLY—NO AFTER-CLEANING

ORDER TRIAL GALLON AT DRUM PRICE

I. C. D. FORMULA 9 is the standard of safety and quality . . can be sprayed or brushed . . doesn't raise grain nor discolor . . quickly removes all kinds of finishes and coatings . . costs less to use . . saves time, labor and material.

SPECIALTY COATINGS—I. C. D. Labs. have specialized in the formulation and manufacture of non-inflammable coatings and substitute finishes. If you have a tough coating or finishing problem send in your specifications, finishing schedule and requirements. Immediate action and a prompt reply promised.

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347 MADISON AVE. NEW YORK 17, N. Y.

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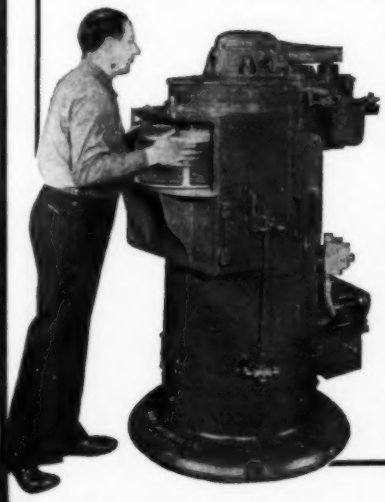

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30 loads per hour can be processed in Lacquer or Enamel with our No. R-200 up to 75 lbs. to a load.

RONCI "SPEEDIP" WHIRL ENAMELER AND COMBINED WASHER AND DRYER

A combination dipping-whirling machine for coating large quantities of small parts. All operations are within the machine. Parts are dipped into coating material, raised and whirled. No additional tanks required. No cleaning when changing colors. Cuts costs and saves up to 90% of material.

Washer and Dryer operates on same principles.

Write for further information or submit samples to be coated.

RONCI MACHINE CO.
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tional attraction, will be employed as a quick freezer. Here is an interesting point, in passing, which was brought up in a survey completed by the Refrigeration Corp. of America: the longer a family uses a home freezer, the larger is the size demanded.

* * *

Emphasis On Distribution—Are higher prices necessary or desirable for the postwar period? One distinguished observer doesn't think so. He is Dr. Alvin Johnson, director of Manhattan's New School, and chairman of its Graduate Faculty of Political and Social Sciences. The key to peacetime prosperity, he maintains, is increased turnover of consumer goods at *lower* prices.

"Unless lower prices and distribution of the greatest volume of goods at the lowest prices dominate the thinking of distribution and industry," he declares, "we shall again have a crisis and unemployment." Dr. Johnson contends that the rate of turnover of many merchandise items can be doubled by cutting inventories (which he describes as "dead capital") by one-half.

* * *

Heavy Cutbacks Coming — The fall of Germany will result in immediate cancellation of at least one-third of all aircraft contracts, the industry has been warned by Maj. Gen. Bennett E. Meyers, deputy director of material and services of the Army Air Forces. In urging aviation officials to assign their best men to the problems of the liquidation program, he remarked crisply that "we will need a lot of Indians and not too many chiefs."

* * *

Warning on Plastics—Frederick Z. Pearson, manager of the plastics division of Lyon Metal Products, has done an effective job of realistic appraisal in a recent issue of *Plastics* Magazine. If misapplications and consequent public mistrust are to be avoided, he warns, first-hand study of proposed applications should be made by experienced plastics engineers.

Rapid production and lower retail prices are possible in the furniture field, says Pearson, by designing such articles as a curved chair made of one piece of plastic sheeting. He also touches a hotly-debated subject — the proposed use of plastics in bathtubs. This expert admits candidly that since plastics do not equal enamel units in hardness, the use of scouring compounds in cleaning tubs would have to be curtailed.

* * *

Trouble Ahead—Although some 5,000,000 workers may be leaving the labor market in the postwar period, unemployment rolls may reach a peak of 15,000,000, warns John E. Hamm, economist of the Biow Co. Addressing the American National Retail Jewelers Association, he adds the brighter observation that by 1946 a new wave of unprecedented peacetime business activity may be under way.

Hamm's predictions are based on several assumptions, among them the following: That the Pacific war will be ended some time in 1945; that war expenditures will be cut in half within six months of Germany's collapse; that a Democratic House plus a Republican Senate will delay recovery; and that consumers will limit their expenditures until full confidence in the future is restored.

* * *

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When planning a trip to New York, drop a line to: *Lawrence H. Singer, 130 W. 86 St., New York 24, N.Y.*

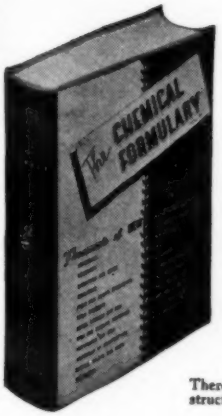
Among the new plays on Broadway worthy of your inspection are "Song of Norway," a stirring operetta; and "Anna Lucasta," a comedy-drama with an All-Negro cast which received critical acclaim.

Juvenile Furniture and Wood Toys Progress

Juvenile furniture, toys and playthings made of wood show a remarkably promising future. These products can be made in volume and they are in heavy demand. Progressive manufacturers of juvenile products realize this fact and as a result, several of them are going in for streamlined modernization of their production facilities. This modernization includes painting, finishing and decorating of the products.

Whatever it takes to coat these articles quickly but on a quality-quantity basis, is in demand by the manufacturers. This includes conveyors, principally overhead chain conveyors with hooks; some semi-automatic or full-automatic means of applying coatings such as spraying, dipping, flow-coating, roller coating, tumbling or whirl finishing; and accelerated drying of final coatings.

Some masking, mechanical striping, stenciling, printing, and decal work will be involved in connection with the finishing and painting operations to provide decora-



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INDUSTRIAL FINISHING Magazine

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Finely cut fabric particles, many colors, many types . . . fluffy, yet filling. Excellent for sound-proofing, insulation and surface protection. Also, applied decoratively to assimilate suede leather finishes, velvet, velour and mohair upholstery effects. Full details, samples and prices upon inquiry.
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tive effects—and, in a few cases, identification marks. The paint and finish coatings used will be so formulated as to be safe for the youngsters to mouth the surfaces without possible harm.

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Postwar Small Business Booklet Free

What each community can do for the postwar prosperity of its own small business concerns, and how to go about it, is the subject of a "C.E.D. Community Handbook on the Special Problems of Small Business," issued recently by the Committee for Economic Development. The book will help to guide the efforts of the 2,000 local C.E.D. committees in all parts of the country "to stimulate the creation of new businesses and to help existing small businesses grow larger and stronger."

A copy of this free booklet can be obtained from your local C.E.D. committee or by writing the C.E.D. at 285 Madison Ave., New York 17, N. Y.

PLAN YOUR PLANT DRIVE NOW!

Good organization will be needed to sell the 6th. As each new military success brings us closer to Victory, the public naturally will feel that the urgency of war financing is lessened —whereas it isn't. So organize now to prevent a letdown on the home front from causing a letdown on the fighting front. Build your plant's payroll campaign around this fighting 8-Point Plan. Don't wait for the official Drive to start—swing into action NOW!

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3 **QUOTA**—Set a quota for each department and each employee.

4 **MEETING OF CAPTAINS**—Have them study the Treasury booklet, *Getting the Order.* Outline sales procedure.

5 **ASSIGNMENTS**—Assign responsibilities for the opening rally, pre-drive letters, and competitive progress boards, etc.

6 **CARD FOR EACH WORKER**—Dignify each personal approach with a pledge, order, or authorization card made out in the name of each worker. Notate each card with the amount of subscription expected.

7 **RESOLICITATION**—Personally recontact each employee toward the end of the drive in a fast mop-up campaign. If you need help, call upon your State Payroll Chairman. He's ready with a fully detailed plan—NOW!

8 **ADVERTISE THE DRIVE**—Use all possible space in the regular media you employ to tell the story of War Bonds!

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As finishing foreman with a reputable casket company. Have 25 years' experience; two years as finishing foreman. Can furnish A-1 reference. Or service man for a reputable paint company. Address IF-128, care Industrial Finishing.

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Serving manufacturers in New York, New Jersey and Pennsylvania, is interested in representing manufacturers of finishing materials and specialties used by industrial concerns. Thorough knowledge of market, industrial finishing, chemicals used in industry, etc. Financially responsible. Manufacturers who produce full lines or specialties are invited to communicate with this advertiser. All communications will receive careful attention. Address IF-129, care Industrial Finishing.

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One for the Detroit area, one for Buffalo, one for Pittsburgh to sell a complete line of Rust Removers, Rust Preventive and Rust inhibiting coatings to the industrial trade — accounts will be turned over to each man. Give information on past experience. Address IF-139, care Industrial Finishing.

Remove Production Line Dust, Lint, and Sand Particles with this Soft Tacky Cloth before applying finish.

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Experienced engineer to supervise spraying of paints, enamels and other finishes. Actual practical experience, plus some knowledge of the chemistry of paints desirable. Write to Supervisor of Technical Employment, 306 Fourth Ave., Pittsburgh 30, Pennsylvania, for application form. WESTINGHOUSE ELECTRIC & MANUFACTURING CO.

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Wanted for an uptodate occasional furniture plant. Mid-west location. Must be cost conscious and capable of supervision both male and female labor. Good salary, steady job. Give qualifications, experience, brief self-history in first letter. Address IF-131, care Industrial Finishing.

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WANTED. Large manufacturer of Industrial Finishes wants thoroughly qualified man to head Stain and Filler Department. Write fully covering experience, age, etc., and mail to IF-132, care Industrial Finishing.

WANTED.

Experienced Industrial Finishing salesman for state of Iowa by moderate sized aggressive young organization. Give detailed experience and qualifications. All replies held strictly confidential. Address IF-133, care Industrial Finishing.

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Wanted for our new development laboratory with special aptitude for long range research in protective coating field—

1. Lacquer—Industrial and Automotive.
2. Vehicles—Alkyds, vinyls, styrenes.

Give full particulars in first letter. Address IF-115, care Industrial Finishing.

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If you are selling LACQUERS, VARNISHES, ENAMELS or kindred products to manufacturers and are successful but desire to better yourself, investigate this advertisement. We are a leading manufacturer of Industrial Finishing Materials doing several Million annually. Our present and postwar program calls for several high calibre, top notch individuals, preferably experienced. Our employees know of this ad. Write in detail experiences, qualifications, etc. Address IF-135, care Industrial Finishing.

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Desired. Must have at least five years' experience. Salary and commission. Address IF-134, care Industrial Finishing.

INDUSTRIAL FINISHES SALESMAN ALSO SERVICE MAN

Wanted: For New England, also New York state, served by Eastern plant of reputable large manufacturer of Synthetics—Enamels—Varnishes—Lacquers. Salesman and Service man must be experienced with large industrial consumers. Technical background preferred. Submit full qualifications and detailed information in first letter. Will be held in strict confidence. Address IF-136, care Industrial Finishing.

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WANTED as assistant to Chief Chemist of an old established, medium sized progressive company in Northern Ohio with excellent Postwar prospects. Prefer man with varied experience, able to do general testing, match colors and some formulating. Permanent position. Give age, experience and salary desired. Address OPPORTUNITY IF-137, care Industrial Finishing.

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For Lacquers, Varnishes and Enamels. Finishing Room Foremen and Laboratory Technicians with good background, sales personality and urge to get ahead should apply for unusual opportunities with leading manufacturer supplying finishes for Automobiles, Trucks, Refrigerators, Metal Office Furniture, Venetian Blinds, Agricultural Implements, Metal Products, Furniture and the like, doing several Million Dollars annually. Our employees know of this ad. Write in detail experiences, qualifications, etc. Address IF-138, care Industrial Finishing.

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Don't throw away spent cleaning thinner, degreaser residues, etc. Send us a sample for quotations. We also reclaim for customers. DYTEX CHEMICAL CO., 267 Plain, Providence, R. I.

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